

Department of Ecology
Responsiveness Summary—Water Quality Policy 1-11
September 6, 2006

The Department of Ecology conducted a public review of two policy documents contained in Water Quality Policy 1-11, from June 7 – July 10, 2006. The documents are:

- Policy 1-11, Chapter I, “Assessment of Water Quality for the Clean Water Act Sections 303(d) and 305(b) Integrated Report” that describes the listing policy that Ecology will use for the Section 303(d) list and other categories that describe the water quality status of Washington’s waters; and
- Policy 1-11, Chapter 2, “Ensuring Credible Data for Water Quality Management” that describes how the department will assure that credible data is used in its decisions.

Public workshops were held in Lacey, Mt. Vernon, Spokane, and Yakima in June 2006 to discuss the revisions and invite comment on the draft documents. Twelve comment letters were received by the closing date of July 10, 2006. Comments have been considered and the policies have been revised based on the relevant comments.

Comments received

1. Brad Ack, Puget Sound Action Team
2. Dan Berlin, Retec Group, Inc.
3. Betsy Cooper, King County Wastewater Treatment Division
4. Josh Johnson, City of Longview,
5. Ken Johnson, Weyerhaeuser
6. Sara Kinney, Nooksack Tribe Natural Resources
7. Lincoln Loehr, City of Everett,
8. Jeff Louch, National Council for Air and Stream Improvement, Inc.
9. Laurie Mann, US Environmental Protection Agency
10. Lawrence McCrone, EcoSciences Practice Exponent
11. Heather Trim, People for Puget Sound
12. David Ringwald, BP Cherry Point Refinery

The following table includes all of the comments from the twelve comment letters received, and Ecology responses to those comments. The comments are arranged in the order that they pertain to chapters 1 and 2 of the policy documents. If you have questions or need further clarification, please contact Mike Herold at (360) 407-6434.

**Department of Ecology
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September 6, 2006**

**Policy 1-11, Chapter I, “Assessment of Water Quality for the
Clean Water Act Sections 303(d) and 305(b) Integrated Report”**

GENERAL**Comment**

Overall, we support the policy concept because it includes requirements for quality, quantity, representativeness of the data, and analysis of the data. However, by allowing Ecology to simply provide a written justification for decisions which deviate from the policy, the policy continues to afford Ecology excessive flexibility for interpretation and implementation.

City of Longview, Josh Johnson

Ecology Response:

A policy is a statement by the agency that describes the procedures and process that are generally followed in conducting an activity or determination. Implementation of policy should always be flexible to account for unusual circumstances and unanticipated situations. Rigid adherence to policy invites claims that a policy is replacing the role reserved for regulations. In this case, decisions which deviate from the policy result in actions that are still subject to public input during the listing process (and TMDL and standards revisions).

Page 1 of the draft Policy – The Purpose statement refers to the assessment and categorization of waterbody segments according to “water quality status.” This seems somewhat ambiguous. As a practical matter, the application of this policy is the regulatory tool to determine whether a waterbody attains or complies with WAC 173-201A and WAC 173-204 water quality standards. If the agency agrees, there might be some value in being very clear about the function of the Policy. The first sentence could be rewritten to say

“...will generally be assessed to determine compliance with WAC 173-201A and WAC 173-204 water quality standards and then placed in various categories based on this determination, according to water quality status and priority for further actions. These categories identify the status of the waterbody segment and denote future regulatory actions. This policy also provides specifications for data submittal, ...”

Ken Johnson, Weyerhaeuser

Ecology Response:

The WACs play a central part of the determination in placing a segment in a category. The WACs are the basis for placing in the broad categories of impaired or not known to be impaired. The distinction between the two impaired categories is that Cat 4 considers that a TMDL is not appropriate at this time. Reasons for Cat 4 include consideration of the appropriateness of a TMDL and factors which are not found in WAC 173-

201A or 173-204. The policy is not the method by which we determine compliance with the WQS for reasons other than determining priorities for TMDL actions.

Page 1 – Application. Contrary to the statement in the first sentence, the primary application of this Policy is not to prioritize TMDL efforts. Rather, the application of the Policy is to facilitate systematic categorization of waterbody segments based on available information. Decisions about TMDL development priorities occur through a subsequent Ecology decision procedure. The agency should consider dropping the phrase “...to prioritize Total Maximum Daily Load (TMDL) efforts” from the opening sentence.

Ken Johnson, Weyerhaeuser

Ecology Response:

Section 303(d) of the Clean Water Act (CWA) requires each state to identify those waters which do not meet applicable water quality standards despite NPDES permit effluent limitations, establish a priority ranking for those waters and then establish the total maximum daily load for pollutants so that applicable water quality standards are implemented. The integrated report performs the first of these functions with the final goal in mind. If a TMDL will not likely fix the problem, but the water body is impaired, placement in Category 4C is appropriate.

In addition to meeting the requirements set forth above, the Integrated Report also satisfies the requirement to submit a biennial analysis of the condition of state waters relative to water quality standards. The categorization scheme replaces the report formerly submitted to satisfy Section 305(b) of the CWA.

The text was modified to emphasize the purpose of the report in satisfying 305(b) requirements.

Page 2 – Introduction and Background. In the fourth line it would be more appropriate to state

“...prepare a list of ~~waters in which designated uses are impaired~~ water quality limited segments, as determined through the use of water quality standards.”

This amendment would make the intent consistent with 40 CFR 130.7(b)(1) and also get away from the assumption that periodic non-attainment with water quality criteria necessarily equates to “designated use” impairment.

Ken Johnson, Weyerhaeuser

Ecology Response:

Agree, text has been modified

There are many terms that need to be defined throughout this document. Please add a definitions section or further explaining within the text. For example an abbreviated list of the type of terms that need further defining (and page):

Modeled Data (pg 15)

Quality Assurance Procedures (pg 15)

Small Increment (pg 17)

Threshold (pg 17)

Waterbody Segment (pg 19)

7Q10 (pg 31)

Sara Kinney, Nooksack Natural Resources

Ecology Response:

Some definitions were added within the text of the policy and others were defined in Section 10, Abbreviations and Acronyms.

Modeled Data: Describe in Chapter 2 of the policy.

QA Procedures: Describe in Chapter 2 of the policy.

Small Increment: Described policy as the measureable increase or decrease allowable in the temperature and dissolved oxygen criteria, respectively.

Threshold: A specific definition does not seem necessary because it represents the standard dictionary term: a level, point, or value above which something is true or will take place and below which it is not or will not.

Waterbody Segment: Described in detail in Section 2, Waterbody Segments and GIS Layers

7Q10: Added to Section 10, Abbreviations and Acronyms

CALL FOR DATA

The Chapter states, “The “call for data” will be announced and will be open for a minimum of 30 days.” This period must be for longer than 30 days, preferably 60 days or longer. Given that Ecology does not allow for submittal before the call for data, we do not know when the call will be, and the Department lacks the staff and resources to conduct specific outreach to acquire academic research data, this period must be much longer than 30 days.

Heather Trim, People for Puget Sound

Ecology Response:

Data may be submitted into EIM at any time, including time outside of the official “call for data”. For data that is in EIM, the call for data is mostly

a reminder to complete the inputting process so that all relevant data can be assessed. The call for data sets the sideboards for the inclusive period of the submitted data.

COORDINATION WITH TRIBES AND OTHER STATES

In the bulleted list of steps in which Ecology will confer with Tribes, the second bullet referring to preparation of draft and final list, specifies Category 5. This should say the 303(d) list, as Tribes should be conferred with on all Categories of the list.

Additionally, please add a bullet for conferring with interested tribes with affected natural resources on determining “natural conditions” i.e.:
Determining Natural Conditions

Sara Kinney, Nooksack Natural Resources

Ecology Response:

Language has been changed in the Policy to include other categories that make up the Water Quality Assessment. We do not believe it is necessary to add an additional bullet on natural condition calls, as these will be included in the Assessment results that will be shared with the tribes, and they will have the opportunity to confer with Ecology on these as well as other assessment results.

WATERBODY SEGMENTS

Changes in List Prior to Next Cycle – page 18 – while we are please to see that minor changes can be made between Assessment cycles, we would suggest that changes to waterbody segment status should also be able to be made between cycles. If there are waters that have been shown to meet water quality standards, that change in status should not have to wait for as many as 3 or 4 years.

Betsy Cooper, King County Wastewater Treatment Division

Ecology Response:

Ecology agrees that it would be ideal to be able to reflect changes in the status of waterbodies on a more regular basis. The challenge comes in getting EPA approval of those changes, which requires a public process. We will continue to work towards more regular reporting of waterbody status and perhaps can come to an agreement with EPA that more timely changes can occur when the status changes from Category 5 to Category 4A, at a minimum.

p. 15, “Assessment Methodology” Third Paragraph – Last Sentence:

This sentence needs clarification. It is difficult to understand what is meant by “segmentation scheme changes resulting a resorting of data within segments”.

Sara Kinney, Nooksack Natural Resources

Ecology Response:

Text has been removed as it refers to future listing cycles.

We feel that the Department should move to the watershed-based approach of segment designation immediately. The draft Chapter states, “To promote national consistency in measurement and reporting, EPA has recommended that states use the National Hydrography Dataset (NHD) for segmentation of waterbodies... Recognizing the benefits of reporting segments based on hydrologic features, Ecology intends to move towards application of the NHD for future listing cycles when it becomes available for use at the 1:24,000 scale.” The township/Range approach is inappropriate for water quality assessments that are conducted towards the eventual commencement of TMDLs, which must be done on a watershed (or subwatershed) basis.

Heather Trim, People for Puget Sound

Ecology Response:

Ecology has stated our intention to move to a segment system based on hydrologic features as soon as the appropriate GIS map tools are available to make the conversion. The 1:24,000 NHD recommended by EPA is not yet available for use in Washington, precluding its adoption and use by Ecology. We have been told it will be available in 2007, and are using the additional time to make sure that other mapping and GIS tools used by the State are compatible with the NHD. In the meantime, we are taking steps in the 2006 listing process to add the Latitude-Longitude Identification Datapoint (LLID) to all listed segments, which will be a first step in eventual conversion to NHD.

Approach to defining segments. We find it appropriate for Ecology’s 2006 assessment to use definitions of segments of the fresh and marine waters of Washington state in a manner that is generally consistent with that used in Ecology’s most recent water quality assessment. However, we encourage your efforts to shift to a less arbitrary segmentation for future assessments (i.e., 2008 and subsequent). We specifically suggest that Ecology refine the arbitrary grid approach to segmenting the marine and estuarine waters of Puget Sound for future assessments. PSAT staff recommend that Ecology develop an approach that generates units that better represent the geographic and oceanographic units of Puget Sound. For example, the waters of Puget Sound could be identified by the basins identified by the Puget Sound Assessment and Monitoring Program (PSAMP), sub-basins defined for Puget Sound chinook recovery, individual bays and waterways, and/or subsets of any of these areas. (Comments in a later paragraph address concerns with the proposed approach for segmenting areas of sediment contamination.)

Brad Ack, Puget Sound Action Team

Ecology Response:

Ecology recognizes the difficulty is identifying locations in the Puget Sound that are both accurate and immediately recognizable. To date, we have found no such system. Ecology appreciates the four-basin concept of identification of the major basins within Puget Sound. While the four-basin approach provides large, geographically and hydrologically related areas, these areas are too expansive to provide accurate pollutant information. Although Ecology’s grid system associates a grid cell with a single sampling location, the extent of a pollutant problem and associated sources are defined in the TMDL investigation. The TMDL investigation is triggered by a 303(d) listing regardless of the size of the area listed.

As we have stated in several previous comment letters, we strongly disagree with the policy of placing waterbodies in Category 4c when they are impaired by invasive species and other stressors. It is inaccurate to use the explanation that the Category 5 impairments are all oriented towards TMDLs – sediment cleanups and other habitat impairments are not “fixed” by TMDLs. Further, temperature is not addressed, in most cases, by re-allotment of wastewater discharges but by land management and policy changes, similar to what is needed to address invasive species and other habitat impairments.

Heather Trim, People for Puget Sound

Ecology Response:

Ecology continues to believe that exotic invasive species are appropriately placed in Category 4C based on “loss of habitat due to invasive exotic species.” Remedies to correct habitat impairment caused by exotic invasive species would not be cleaned up through TMDL load allocations or loading capacities. The control and prevention of invasive exotic species are more appropriately dealt with by agencies that have control of ballast water, shipping, and other avenues for introducing them into the environment.

During the 2005 legislative session a bill was passed to raise funds to help prevent and control aquatic invasive species in Washington State. Increased vessel license fees contribute to the aquatic invasive species prevention account to provide inspections, education, and enforcement to control zebra mussels, algae, and other invasive species, as well as creating an early detection and prevention program. See the website at: <http://www.doi.wa.gov/vs/aquaticspecies.htm#additional>. This program is specifically designed to address invasive species, and already has dedicated funding to accomplish those goals. A TMDL would not be the appropriate vehicle to cause the prevention of invasive species getting into our waterbodies, and the placement of these into Category 5 would in fact take limited TMDL funding away from other, more appropriate, water quality priorities.

CATEGORY 1

Page 10 – Category 1 Meets Tested Criteria. The opening sentence in the fourth paragraph is mysterious. How is it that a waterbody segment/pollutant combination placed in Category 1 *Meets Tested Criteria*, could possibly be “contributing to an impairment at a downstream location”? A couple of examples would be useful to explain this point.

Ken Johnson, Weyerhaeuser

Ecology Response:

The most likely situation where a segment could be contributing to a downstream impairment is with a Cat 1 from the previous listing cycle. Previously, only one data point that met a criterion was sufficient to place a segment in Category 1 for a particular pollutant. A good example is for temperature listing where a location upstream may be meeting the numeric criterion but adding heat that eventually cumulatively exceeds the numeric criterion downstream.

CATEGORY 4C

This category is described fairly well in this section, however there is not an explanation in any part of the document for a mechanism in which to either add or remove an impairment by a non-pollutant (4c listing).

While the 303(d) list is intended to identify waterbodies that need a TMDL, over the years, watersheds have used the 303(d) list as a mechanism for

identifying waterbodies with impairments for prioritizing projects including such parameters that fall under category 4c such as instream flows and fish habitat.

The larger question of how these impairments will be addressed needs to be resolved, but in the interim it seems that Category 4c needs to remain an integral part of the 303(d) list. In order for that to happen a mechanism/criteria needs to be described in this document for listing or de-listing 4c parameters.

Sara Kinney, Nooksack Natural Resources

Ecology Response:

Ecology appreciates this observation and agrees that detail is lacking in regard to how impairments that lead to 4C listings are added or removed. EPA Guidance does not provide details on how they anticipated Category 4C listings being added or removed, similar to details for Category 5. Ecology has added language to clarify what is needed to add or remove 4C listings (see Section 5 of the Policy that describes Category 4C).

Page 14 – Category 4b Has a Pollution Control Project. “Habitat Conservation Plans with specific plans to address water quality” are identified as an acceptable project to list waterbodies in Category 4b. The Washington State Forest Practices Habitat Conservation Plan was approved by the U.S. Fish and Wildlife Service and NOAA Fisheries in early June 2006. This action would seem to provide a basis for Ecology’s shift from the current Category 5 listing to Category 4b of the many waterbody/pollutant combinations in timbered areas subject to Washington’s Forest Practices Act and regulations, and addressed by this HCP.

In the interest of transparency, if there are subtleties in how Ecology would apply the criteria supporting Category 4b listing (and specific to the Washington State Forest Practices Habitat Conservation Plan) further explanation should be provided in this Category 4b subsection.

Ken Johnson, Weyerhaeuser

Ecology Response:

The section describing Category 4b lists several criteria which must be met to qualify in this category, regardless of the type of project (see page 13). In order for Ecology to determine that a waterbody segment is eligible as a Category 4b listing, the project documentation must be submitted to Ecology during the “call for data” with information provided by the submitter to show that the 4b criteria have been met. In the case of the State Forest Practices Habitat Conservation Plan, we would need to review the information submitted to determine if the HCP meets the outlined criteria before we could make a 4b determination. For example, we are unsure that the state plan includes waterbody-specific details or has a monitoring component. It might be helpful to look at 4b listings made in 2004 to get a better understanding of what kind of projects have previously qualified for Category 4b.

BACTERIA

Page 20, Bacteria pages.

There needs to be a discussion of Category 4 determinations. Obviously, if there is a bacteria TMDL in place, that would be a Category 4a.

There needs to be a discussion of Category 3 determinations. One such basis would be that the data meet the criteria but there are less than 10

samples available for the reporting period.

City of Everett, Lincoln Loehr

Ecology Response:

Category 4 determinations are discussed in section 5 of the policy. Ecology has added text to each parameter-specific methodology to explain Category 4 determinations.

The policy text has been clarified to discuss Category 3 for each pollutant parameter. A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

In the case of bacteria; If less than 10 samples are available but at least one exceedance exists and no other data is available then the waterbody segment would be placed in Category 2. If no other Category applies then the information would be placed in Category 3 for that waterbody segment.

Please modify the opening lines of the Bacteria Category 5 Determination language to something akin to:

“A segment or grid will be placed on Category 5 if a minimum of five samples in the last ten years exceed the geometric mean criteria. Fewer than five samples in the past ten years may support placement in Category 5 based on the percentile criterion.”

The other field tests (DO, Turbidity, TDG, pH, and Temperature) all share this data age-limit of 10 years. So should fecal coliform – especially given its great and today's use of SM 9221 E for analysis.

The section labeled “Change From a Previous Category 5 Listing” should remain.

City of Longview, Josh Johnson

Ecology Response:

Because of the pollutant characteristics, fecal coliform is assessed on a year-by-year basis and the most recent dataset will be used to determine the proper category for each waterbody.

To reduce the affect of varying sampling effort by year, Ecology assesses data on an annual basis for ALL parameters based on the methodology of each parameter. Although the methodology may be different by parameter, Ecology will not combine data collected in different years for any parameter.

Each annual (or seasonal) dataset will be looked at separately. If the methodology requires exceedances from multiple years, this analysis will occur after a look at each year (or specified season) of data assessed.

The proposed approach for assessment of bacteria indicates that bacteria-related advisories from Washington Department of Health (DOH) or others could result in a Category 5 designation. We suggest that this discussion be broadened to indicate that DOH or others' advisories might result in Category 4b or Category 2 determinations. For example, (1) a growing area where harvest is prohibited, restricted, or conditionally approved which has a pollution control program in place could be designated as Category 4b rather than Category 5 and (2) an area on DOH's list of threatened growing areas could be listed as Category 2.

Brad Ack, Puget Sound Action Team

Ecology Response:

The policy has been clarified to explain how Ecology will use DOH data. Ecology will use DOH information to make Category 5, 4b, 2 and 1 determination.

The bacteria percentile criterion is or should remain as **“with not more than 10 percent of all samples”** exceeding the percentile criterion. As written the draft Policy currently states 10% or more. Please fix.

City of Longview, Josh Johnson

Ecology Response:

Noted, text modified

Last paragraph on page 19 states: “Bacteria sample values collected to determine localized conditions of a swimming area during peak primary contact recreation are not representative of ambient conditions of the water body segment.: EPA has concerns with this statement and the rest of the paragraph because primary contact recreation applies rear round regardless of how the water is being used. This paragraph is not consistent with Washington's water quality standard for bacteria.

Laurie Mann, US Environmental Protection Agency

Ecology Response:

EPA's 2006 Integrated Report Guidance allows states flexibility in deciding how they will use data for listing decisions, including spatial and temporal representativeness of data used to characterize the conditions of a given waterbody. The statement you reference is intended to identify how Ecology will use data from a localized study that is purposely not representative of ambient conditions but is tailored to identify problems coming from one source. In this case, the State department of Health provides guidance to local jurisdictions on when to close a swimming beach based on fecal coliform levels recommended by EPA that are less stringent than the state water quality standards. Policy 1-11 specifies how Ecology will use bacteria data collected to determine localized conditions of swimming areas. We will use the data from localized studies that show exceedances to place a waterbody segment on Category 2, which will trigger further monitoring outside of the beach area to ensure that fecal coliform exceedances are not occurring from sources outside of the swimmers themselves. If so, the water would be placed on Category 5 and a TMDL would follow.

What is the purpose of the second paragraph on page 19? It starts: “Sample data for bacteria may be collected in 12-month reporting periods...” It is not clear what you mean. The next paragraph states Washington’s water quality standards for bacteria for primary contact “Averaging of data collected beyond a thirty-day period is not permitted when such averaging would skew the data set...” It is difficult to determine how these two paragraphs are related. Please clarify.

Suggestion: Remove this paragraph or else explain the meaning and intent of a 12-month reporting period and how it relates to the water quality standard 173-201A-060(3).

Laurie Mann, US Environmental Protection Agency

Ecology Response:

The paragraph, which discusses the averaging of data collected beyond a 30-day period, was excerpted from State Water Quality Standards. This is a general consideration described in the standards to remove the possibility of increasing sampling frequency to mask periods when standards are not met. This paragraph has been removed from the policy as it is specific to point discharge and not flexible enough to allow for determining the critical period of ambient conditions. As stated in the policy, “*A distinct climatic regime may be a certain season or certain months, in whatever manner is relevant to bacteria and to the waterbody. Ecology will determine the assessment periods case-by-case based on local circumstances, otherwise the assessment period will be the calendar year.*” The 12-month reporting period includes all seasons and is the default assessment period in the absence of (a) defined critical(s) period for a specific waterbody.

BIOASSESSMENT

Page 23, Bioassessment pages.

There needs to be a discussion of Category 4 and Category 3 determinations.

The discussion re “Category Change From A Previous Category 5 Listing” only discusses a change to a Category 1. It should also include a change to Category 2.

City of Everett, Lincoln Loehr

Ecology Response:

Category 4 determinations are discussed in section 5 of the policy. Ecology has added text to each parameter-specific methodology to explain Category 4 determinations.

The policy text has been clarified to discuss Category 3 for each pollutant parameter. A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology’s assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy

We have some concern about the addition of biological indicators to the formal assessment process. It would seem that this metric injects more variability without the solid layer of assurance (QAPP).

City of Longview, Josh Johnson

Ecology Response:

The use of biological indices for 303(d) listings are limited to only those models which have been reviewed to ensure credible results as required by Ecology WQP Policy 1-11, Chapter 2, “Ensuring Credible Data for Water Quality Management”. The RIVPACS method of determining impairment to the biological community has been reviewed for credibility and usability by Ecology and is the preferred method for this reason.

Other methods and models such as Benthic Index of Biological Integrity (B-IBI) will be evaluated to determine their reliability as an indicator of biological impairment prior to using the information for assessment purposes. If the methodology does not include established reference sites that allow a level of confidence in the taxa results, Ecology will require a minimum of three years of monitoring at the site to ensure that consistent results are being achieved. Detailed information is required at the time of data submittal that describes how the data are assessed to determine whether a waterbody segment is impaired, degraded, or unimpaired. This is especially important if the methodology does not have numeric scores associated with the impairment status (similar to RIVPACS).

On page 22, the Chapter states: “Ecology strongly encourages the collection of supplemental data during biological sampling events, especially conventional and chemical pollutant parameters that may be associated with the health of the waterbody. This information is important in determining what may be causing an impaired biological community, and is necessary for making a Category 5 determination. In order to determine the appropriate category for a waterbody that has data showing an impaired biological community, pollutant monitoring must also show impairment in order to be placed in Category 5. Otherwise, the waterbody will be placed in Category 2 until further monitoring is done to determine the impairment.” The pollutant monitoring requirement precludes conditions where the cumulative load of pollutants is causing an impairment, rather than any single pollutant that exceeds an individual standard.

Heather Trim, People for Puget Sound

Ecology Response:

Ecology agrees that there can be a number of variables that could cumulatively lead to an impaired biological community, and that further work needs to be done to determine what those variables are and what can be done to correct them, if they are not due to natural conditions of the stream.

A number of PSAMP studies might provide “bioassessment” data that could be used to designate water quality impairments (e.g., prevalence of liver lesions in English sole, change in size and quality of eelgrass beds). Without further instruction from Ecology it is not clear if and how these data might be considered in determinations about water quality impairments. We recommend that Ecology amend Policy 1-11 to provide information about what type of information should be submitted for, and what will be considered in, case-by-case determinations of impairments based on bioassessment approaches other than RIVPACs. For example, what might be needed to define a reference or natural condition and what

amount of difference from the reference condition might qualify as an impairment?

Brad Ack, Puget Sound Action Team

Ecology Response:

Bioassessment listings as describe in the bioassessment methodology of Policy 1-11 include only those assessments that include an index-based model.

The use of biological indices for 303(d) listings are limited to only those peer review models that include the provisions required by Ecology WQP Policy 1-11, Chapter 2, “Ensuring Credible Data for Water Quality Management”.

Other biological information such as the examples provided (prevalence of liver lesions in English sole, change in size and quality of eelgrass beds) will be used based on the narrative criteria as described in Policy 1-11, under part 6, “Assessment of Information Using Narrative Criteria”. This information, including the necessary quality assurance information, may be submitted directly to the Water Quality Assessment coordinator.

EPA believes more clarification should be made in the first paragraph about the type of bioassessment methods that will be considered on a case-by-case basis.

Suggestion: Ecology could change paragraph one to read: “*Impairment determination based on other bioassessment methods (e.g. B-IBI, because it is commonly used) will be considered on a case-by-case basis.*”

Laurie Mann, US Environmental Protection Agency

Ecology Response:

Text has been appended to explain how Ecology will use B-IBI and other methods to determine impairment of waterbodies.

Fourth paragraph on page 22 it states : “In order to determine the appropriate category for a water body that has data showing an impaired biological community, pollutant monitoring must also show impairment in order to be placed in Category 5. Otherwise the water body will be placed in Category 2 until further monitoring is done to determine the impairment.” EPA does not agree with this approach to listing water bodies. If biomonitoring shows that beneficial uses are not being met then the water is impaired and should be listed in Category 5. According to *EPA 2006 Guidance for 2006 Assessment, Listing, and Reporting Requirements Pursuant to the Sections 303(d), 305(b) and 314 of the Clean Water Act* “States should include biological assessments in the data and information they assemble and evaluate in developing their Integrated Reports and provide a rationale for any decisions not to use the assessments in developing their section 303(d) lists” Lack of pollutant data is insufficient rationale to not list these impaired water bodies. A rationale must be provided for each listing that states why in a specific case the biological data alone is not sufficient to determine impairment.

Suggestion: Many states list waters as impaired by and unknown parameter. Once the water is listed as impaired due to beneficial uses not being supported then parametric monitoring can be done before a TMDL, or be done during the development of the TMDL.

Laurie Mann, US Environmental Protection Agency

Ecology Response:

Text has been amended to include bioassessment data on Category 5 even if no pollutant has been identified as the cause of the impairment.

CONTAMINATED SEDIMENTS

Section 8.c (Contaminated Sediments) of the draft Program Policy 1-11 contains some (but not all) of the information in the attached flowchart. Without the flowchart, it is impossible to determine from the draft policy alone how decisions are to be made. The flowchart needs to be incorporated into the policy document and subject to the same public review process.

There are inconsistencies between the flowchart and the draft policy. On the left side of the first page of the flowchart, in situations where you have fewer than 3 chemical samples, there is a decision box that asks whether the mean of <3 chemical samples exceeds the SQS, and, if answered in the affirmative, the grid is placed in Waters of Concern (Category 2). The text of the draft policy includes a similar query, except that the comparison is with the CSL, not the SQS. Similarly, there is an equivalent decision box for situations where you have fewer than 3 chemical samples in the middle of the second page of the flowchart with a comparison with the SQS, and yet another decision box for situations where you have fewer than 3 chemical samples on the right side of the second page of the flowchart with a comparison with the SQS; in both cases, it would appear that the comparison should instead be with the CSL, not the SQS, if the draft policy is correct.

Another inconsistency between the draft policy and the flowchart: in the middle of the first page of the flowchart, in situations where you have 3 or more chemical samples, there is a decision box that asks whether the mean of 3 chemical samples exceeds the SQS, and, if answered in the affirmative, the grid is listed (presumably this means Category 5). The text of the draft policy includes a similar query, except that the outcome of an affirmative decision is placement of the grid in Waters of Concern (Category 2), not listing in Category 5. Curiously, the text of the draft policy infers that you take the mean of as many samples as you have from that grid (i.e., "mean of ≥ 3 chemical samples exceed SQS"), whereas the flowchart suggests only taking the mean of 3 samples; presumably, the intent is to take the mean of the 3 samples with the highest concentrations of each chemical, although that is not explicitly stated). Similarly, there are equivalent decision boxes for situations where you have 3 or more chemical samples on the second page of the flowchart where the distinction between taking the mean of ≥ 3 chemical samples or the mean of the 3 samples with the highest concentrations of each chemical isn't clear.

Lawrence E. McCrone, Exponent

Ecology Response:

It appears that the flow chart referenced in the comments is an outdated draft from the year 2002 and, therefore, would not be consistent with this updated 2006 Policy 1-11. The 2006 flow chart will be available to the public on the Ecology Toxics Cleanup Program website. This flow chart further details the decision making process for 303d sediment listings and is consistent with the narrative text in this updated 2006 Policy 1-11.

The mean of the three most recent highest concentrations from three spatially distinct and chemically similar stations in one grid will be used to determine Category listings. The flow chart referenced in this comment is an outdated 2002 draft that is not consistent with the 2006 flow chart which accompanies the 2006 Policy 1-11.

Both the draft policy and the flowchart discuss the interpretation of the number of "points" for biological data (e.g., sediment toxicity test results), but there is no discussion of what constitutes a biological "point". The term biological "point" is not used in the Sediment Management Standards (WAC 173-204) or in any other Ecology guidance that I am aware of. Separately, I have been told that an SQS level failure of a biological test is one "point", and that a CSL level failure of a biological test is two "points". However, even so, it is impossible to know whether a single sediment station can have more than 2 "points" (i.e., does a single biological test failure at the CSL level cause a station to have 2 "points", regardless of whether other biological tests also failed at either the SQS or CSL level?). If, for example, there were 3 tests with SQS level failures at a single station, does that count as 3 "points" for that station, or, conversely, if all three tests at that station had CSL level failures, does that count as 6 "points"? I have been told that in the interpretation of members of the sediment management unit, a single station can indeed have more than 2 "points", although this position makes little sense to me. This is not a trivial distinction, because on the second page of the flowchart, a total of 3 or more biological "points" automatically results in a Category 5 listing; in the interpretation of members of the sediment management unit, a single station could have 3 or more "points"; if, on the contrary, a single station can have no more than 2 "points", more than 1 station would be required. The policy needs to explicitly state how biological "points" are calculated and how they are interpreted for multiple tests at the same station.

Lawrence E. McCrone, Exponent

Ecology Response:

Comment noted. The text will be clarified. It is correct that the Sediment Management Standards (SMS) do not specifically reference the term "points" for biological tests. The text will be clarified to reflect that the point system is in compliance with the SMS WAC 173-204-520(3)(d). Whereas, when any two of the biological tests exceed the SQS (two "hits") at any one given station it is a CSL biological exceedance for that station and that station is assigned 2 points. When only one biological test exceeds the SQS (one "hit") at any one given station, it is an SQS exceedance for that station and that station is assigned 1 point. Each station can have a maximum of 2 points and there can be multiple spatially distinct and chemically similar stations per grid. A total of 3 points or greater within a given grid would be required for a Category 5 listing. This would equate to 3 spatially distinct and chemically similar stations exceeding the biological SQS criteria (3 points); or 2 spatially distinct and chemically similar stations one exceeding the CSL and one exceeding the SQS (3 points); or 2 spatially distinct and chemically similar stations each of which exceeds the CSL (4 points); or any combination of SQS and CSL station designations which result in 3 points or greater.

The most recent chemical and biological data will be used and can override older data on a station by station basis if it is in compliance with the SMS and Ecology requirements.

Section 2 (Waterbody Segments and GIS Layers) of the draft policy states that in open waters, waterbody segments are defined by "a rectangular grid sized at 45 seconds longitude by 45 seconds latitude (approximately 2,460 feet by 3,650 ft)". In actuality, the distance in feet corresponding to 45 seconds longitude is a function of the latitude, whereas the distance in feet corresponding to 45 seconds latitude is a constant (4,557 feet).

The rectangular grids referred to in the comment above are apparently used only for defining waterbody segments on the basis of violation of water quality standards. On the contrary, the draft policy goes on to state that "contaminated sediment site size is defined by the mapped polygons in the SEDQAL [sic] database". This appears to be in contradiction to the flowchart, which makes reference repeatedly to "grids". It also begs the

question of what samples are to be considered in unison (and averaged) in the flowchart; if the samples are any collected within a defined grid, then it would appear that one would average the three highest chemical concentrations within that grid. If however, contaminated sediment sites are defined by mapped polygons (each of which is defined by a single sample), it isn't clear what you would average over. Would, for example, any three samples that were to be averaged have to be contiguous? Or could they be separated by other stations with much lower concentrations of that chemical? The Sediment Management Standards employ the concept of "station clusters" that are contiguous stations; by analogy, one could interpret the intent of the flowchart to be that stations would have to be contiguous if their chemical concentrations were to be averaged. However, neither the draft policy nor the flowchart shed any light on this issue.

Lawrence E. McCrone, Exponent

Ecology Response:

Comment noted. The text will be clarified to reflect that, if available, mapped polygons will be used to delineate Category 4b cleanup sediment sites. Otherwise grids, one quarter the size of the Water Quality Program grids, will be used to delineate Categories 1 through 5 for sediments. The text will be clarified. Please see the above response for more detail on Category listings.

The draft policy states that sediment samples with any chemical detection limits that are over the SQS "will be considered to exceed the SQS". For the purposes of 303(d) listing, this policy makes absolutely no sense. Category 5 of the draft policy should include only those waterbodies where there is a clear violation of either water quality standards or sediment quality standards. It is entirely possible, by the logic of the flowchart, to end up being listed as a Category 5 site on the basis of having 3 sediment samples that had all detected chemical concentrations well below the SQS and only one sample with a detection limit for a single chemical only marginally exceeding the SQS. Consider the hypothetical situation in which you had 3 samples with chemical data but no biological data. Furthermore, all detected chemical concentrations were well below the SQS. However, benzyl alcohol (a chemical that often has detection limits above the SQS) was never detected but had detection limits in the three samples of 0.9 x SQS, 0.9 x SQS, and 1.3 x SQS. Those detection limits would be treated as if they were detected concentrations; the mean would be 1.03 x SQS. If you follow through the first page of the flowchart with this hypothetical situation, you end up listing the site (Category 5) based on this single very marginally elevated detection limit for a single chemical. Surely, a Category 5 listing is not warranted. Category 3 (where not enough usable data exist, but where further sampling may be warranted) or Category 2 (where there is an exceedance of the Sediment Management Standards, but where further investigation and monitoring is required) would seem to be far more appropriate designations.

Lawrence E. McCrone, Exponent

Ecology Response:

Comment noted. The text will be clarified. The definitions Ecology uses for sediment analytical limits are taken from the Model Toxics Control Act (WAC 173-340-200).

Method Detection Limit (MDL): Minimum concentration of a compound that can be measured and reported with 99% confidence that the value is greater than zero.

Practical Quantitation Limit (PQL): The lowest concentration that can be reliably measured within specified limits of precision, accuracy, representativeness, completeness, and comparability during routine laboratory operating conditions, using department approved methods.

The SMS [WAC 173-204-320(2)(a)] requires that, when laboratory results indicate a undetected chemical, the detection limit shall be reported to be at or below the Marine Sediment Quality Standards (SQS) chemical criteria. The Chapter 7 Quality Assurance and Quality Control Requirements of Sediment Sampling and Analysis Plan Appendix (Ecology Publication No. 03-09-043) note that the PQL shall not be greater than the SQS of the SMS. Therefore the PQL must be at or below the SQS chemical criteria. It is the interpretation of Ecology that, when the PQL is above the SQS chemical criteria it is considered an exceedance of the SMS and cannot be defined as Category 3 if it meets the specified 303d listing criteria. Ecology must enforce the SMS chemical criteria limits for all sediment data.

The Sediment Sampling and Analysis Plan Appendix Table 5 lists the recommended PQL limits for each SMS chemical. If a chemical concentration is reported as undetected or estimate between PQL and MDL, then the PQL should also be provided.

Confirmatory biological testing would be required when a CSL chemical exceedance occurs which would include MDL or PQL CSL exceedances. Therefore, a Category 5 or 2 listing due to MDL or PQL QA/QC issues can be avoided if confirmatory biological testing is performed in compliance with the SMS and Ecology requirements.

Requirement of Electronic Data Submission, including SEDQUAL - Pages 6, 8, 24 – This section refers to the EIM including the SEDQUAL database. There is questions regarding the way Ecology appears to be using the SEDQUAL database and therefore requiring all data to be provided in SEDQUAL, no matter what the data was collected for, raises concerns. This applies particularly to benthic data which were not collected with the requisite control data, but never the less used in comparisons with other data and for conclusions on sediment quality. We suggest that there needs to be further consideration and discussion regarding how the sediment and benthic data will be handled and the place the SEDQUAL database and its calculations has in these reporting and listing processes.

Betsy Cooper, King County Wastewater Treatment Division

Ecology Response:

All sediment monitoring data should be submitted in error-free SEDQUAL templates. . Data collected and submitted to Ecology must be sampled and analyzed in compliance with the SMS, with the proper controls, to be used in any regulatory decision making. The SEDQUAL database accommodates chemical, bioassay and benthic data submission and analysis. All calculations and analysis of sediment data is conducted according to the Sediment Management Standards using the SEDQUAL database tools.

The requirement on page 24 that “Sediment data must be entered into the SEDQUAL database to be considered” is unreasonable for third party submitters. Unfortunately, data from Superfund sites and other cleanups may not be entered into SEDQUAL in time for the call for data and it is unreasonable to require a third party to take this on in order to submit such data.

Heather Trim, People for Puget Sound**Ecology Response:**

SEDQUAL is the database and analysis tool used by Ecology to determine sediment Category listings. Data received in another format will be accepted but, because of the volume and complexity of data used, Ecology must have also have the data in SEDQUAL templates to accurately determine listings. Sediment data submitted in error-free SEDQUAL templates will be accepted at any time. Data received during the call for data period will be entered into SEDQUAL by Ecology staff and used for 303(d) listing determination.

The Policy discussion on the point system methodology is confusing. It appears that each biological CSL hit equals two points and each biological SQS hit equals one point. A sum of three points equates to a potential category 5 303(d) listing and less than three points (1 to 2) equates to a potential category 2 303(d) listing. This process should be clarified in the text.

- RETEC believes that a single sample station should be assigned 0, 1 (CSL hit), or 2 (SQS hit) points and should not be accorded a greater weighting under circumstances where the chemical or biological criteria are exceeded multiple times. Therefore, hits from at least two spatially distinct stations should be required to result in a Category 5 listing.
- The Policy should address circumstances in which, for a given sampling station, multiple data sets exist. Greater weight should be conferred upon newer (more recent) data in making Category determinations.
- The Policy indicates that only one station with a chemical or biological CSL can result in a 303(d) Category 5 listing. This is more conservative than the Sediment Cleanup Standards Users Manual and SMS decision criteria used to list sites. A minimum of three stations should be evaluated for Category 5 listing.

Dan Berlin, The RETEC Group, Inc.**Ecology Response:**

- Comments noted. The text will be clarified to reflect that the point system is in compliance with the SMS WAC 173-204-520(3)(d). Whereas, when any two of the biological tests exceed the SQS (two “hits”) at any one given station it is a CSL biological exceedance for that station and that station is assigned 2 points. When only one biological test exceeds the SQS (one “hit”) at any one given station, it is an SQS exceedance for that station and that station is assigned 1 point. Each station can have a maximum of 2 points and there can be multiple spatially distinct and chemically similar stations per grid. A total of 3 points or greater within a given grid would be required for a Category 5 listing. This would equate to 3 spatially distinct and chemically similar stations exceeding the biological SQS criteria (3 points); or 2 spatially distinct and chemically similar stations one exceeding the CSL and one exceeding the SQS (3 points); or 2 spatially distinct and chemically similar stations each of which exceeds the CSL (4 points); or any combination of SQS and CSL station designations which result in 3 points or greater.
- The most recent chemical and biological data will be used and can override older data on a station by station basis if it is in compliance with the SMS and Ecology requirements.

- The chemical criterion for a Category 5 listing requires that the mean concentration of each SMS chemical measured at three spatially distinct and chemically similar stations must exceed the CSL within a given grid and meet the assessment criteria in WAC 173-204-510 through 520. If the mean of an SMS chemical concentration at three spatially distinct and chemically similar stations exceeds the CSL within any given grid, but the data do not meet the assessment criteria in WAC 173-204-510 through 520, the grid is a candidate for a Category 2 listing and will require further comprehensive characterization and source control actions.

Category 5 Sediment Listings - page 24 – This section indicates that a list of cleanup sites designations will be included in Cat. 5 but then goes on to make a very open-ended statement “...as well as identified new areas not yet included in the report that exceed the CSL levels.” This statement should be clarified or expanded on to indicate: identified by whom; and exceeding what CSL levels how many times? This statement being open-ended leaves the potential for any sediment site that has exceeded a CSL level only once to become a potential candidate for a Cat 5 listing, where on the next page it seems some criteria are already identified for Cat 2 listings.

Further The SMS uses the average of 3 locations exceeding the CSL (or 3 CSL bio hits) as the trigger for calling the area of potential concern needing further investigation. Why would a lower trigger be used to call the water body segment impaired. There is no biological basis under the CWA to say that one location exceeding the CSL impairs a water body segment. We strongly recommend this section be revised.

Betsy Cooper, King County Wastewater Treatment Division

Ecology Response:

The phrase “as well as identified new areas not yet included in the report that exceed the CSL levels” refers to sites that have been identified in the interim period between the publication of the Sediment Cleanup Status Report and the 303(d) listing. Since publication of the Sediment Cleanup Status Report is not necessarily in sync with publication of the 303(d) listings, Ecology needs to be able to add sites to the 303(d) list that are not yet in the report.

The SMS (WAC 173-204-510) defines clusters of concern by using three stations with the highest contaminant concentration or the highest degree of biological effects. The 303(d) listing process is a conservative approach to identify impaired sediments by using two stations for biological effects. This is due to the fact that the size of grid system (one quarter the size of the Water Quality Program grids) for the 303(d) list is potentially much larger than a station cluster of concern referenced in the SMS. The 303(d) policy does not define a Category 5 listing based on one CSL exceedance. Please refer to previous responses for further detail on Category 5 listings.

Sediment Listings and Biological Points – page 25 – Under the Cat 2 Determination section there is the first mention of “biological points”. This point system is not explained here or anywhere else in the document and is also not referenced to in any of the other Category Determinations. This different scale of assessment must be more clearly described and then defined as to its relevance for these listing processes. It appears to be used in the sediment management units work to determine when to require further investigation or clean-up approaches but its application should be further scrutinized before it is identified as having listing consequences. It is not clear what level of bioassay or sediment sample failure would constitute

points and therefore the policy is not possible to understand or evaluate.

Betsy Cooper, King County Wastewater Treatment Division

Ecology Response:

Comments noted. The text will be clarified to reflect that the point system is in compliance with the SMS WAC 173-204-520(3)(d). Whereas, when any two of the biological tests exceed the SQS (two “hits”) at any one given station it is a CSL biological exceedance for that station and that station is assigned 2 points. When only one biological test exceeds the SQS (one “hit”) at any one given station, it is an SQS exceedance for that station and that station is assigned 1 point. Each station can have a maximum of 2 points and there can be multiple spatially distinct and chemically similar stations per grid. A total of 3 points or greater within a given grid would be required for a Category 5 listing. This would equate to 3 spatially distinct and chemically similar stations exceeding the biological SQS criteria (3 points); or 2 spatially distinct and chemically similar stations one exceeding the CSL and one exceeding the SQS (3 points); or 2 spatially distinct and chemically similar stations each of which exceeds the CSL (4 points); or any combination of SQS and CSL station designations which result in 3 points or greater.

The proposed policy does not clearly describe how areas of contaminated sediments will be defined. Action Team staff do not find “mapped polygons” of contaminated sediment sites in SEDQUAL. We suggest that Ecology clarify this reference in the draft policy. Further, we recommend that Ecology amend Program Policy 1-11 to include more specific information about how screening clusters of sediment stations (WAC 173-204-510) will be used to designate areas for categories 3, 2, and

1. For example, will Ecology use the “cluster of stations” delineation to identify areas to test against the category 3, 2, and 1 criteria?

Brad Ack, Puget Sound Action Team

Ecology Response:

Comment noted. The text will be clarified. Mapped polygons, if available, will be used to delineate Category 4b cleanup sediment sites. Otherwise grids, one quarter the size of the Water Quality Program grids, will be used to delineate Categories 1 through 5 for sediments.

The proposed definition of Category 5 for impairments due to contaminated sediments is too narrow. WAC 173-204-310(1)(b) notes that sediments with chemical concentrations that exceed any one numeric sediment quality standard (SQS) criterion are (initially) designated as having adverse effects on biological resources and fail the sediment quality standards (pending confirmatory designation). Therefore, we recommend that Ecology shift the second bullet from the proposed Category 2 determination (i.e., mean of 3 or more samples exceed the SQS) to a criterion for designation as Category 5.

Brad Ack, Puget Sound Action Team

Ecology Response:

A Category 2 designation allows Ecology to require further investigation of a sediment area of concern to determine if it should be later designated as Category 5. The SMS does recognize an SQS exceedance as a determination of adverse effects. A Category 2 determination for a site with three

or more stations that exceed the SQS is deemed severe and will require further investigation and, if applicable, source control actions and/or a Category 5 designation.

The second paragraph of the section on the Category 2 determination for contaminated sediments (i.e., “these sites have been determined to exceed the sediment quality standards...”) describes analyses that should be pursued after categories are determined. We recommend that Ecology delete this paragraph and present the information elsewhere. For example, Ecology could amend section 7 of chapter 1 (“other assessment considerations”) to present:

- information from the deleted paragraph, perhaps referring to the specific steps that Ecology might pursue per WAC 173-204-400(4) to (10), and Mr. Herold July 10, 2006 Page 3
- a reminder that contaminated sediment listings based on initial (chemical concentration-based) sediment cluster designations might be reversed by confirmatory biological tests (per WAC 173-204-310(2)).

Brad Ack, Puget Sound Action Team

Ecology Response:

Comment noted. For clarity, Ecology has decided to write a relatively separate section for contaminated sediments. The text will be clarified regarding biological test data override of chemical data.

Finally, Action Team staff are concerned that the condition that sediment “samples must be taken from surface sediments 0-15 centimeters in depth” might be interpreted too narrowly. We recommend that Ecology clarify that the assessment can use data from samples that represent any portion of the 0-15 centimeter depth. A category 5 designation identifies the need for further study and should be triggered by any measurable depth of contaminated sediments, as it would be by a water column problem at one depth.

Brad Ack, Puget Sound Action Team

Ecology Response:

Comment noted. The text will be clarified to state that any depth interval from 0 – 15 centimeters required to be sampled by Ecology can be used to determine compliance with sediment criteria.

Page 24. The units of measure need to also include mg/kg OC (for those parameters with standards that are based on total organic carbon normalized values).

City of Everett, Lincoln Loehr

Ecology Response:

Comment noted. The policy has mg/kg organic carbon stated as a unit of measure.

Page 24. The units of measure should also include mention of biological tests (which are part of the standards and in fact over-ride the numeric chemical standards.

City of Everett, Lincoln Loehr

Ecology Response:

Comment noted. The text will be clarified.

Page 24. The paragraph beginning with “Data submitted for toxic....”
Add the following sentence to the end of the paragraph:

“Biological test results override the chemical results.”

City of Everett, Lincoln Loehr

Ecology Response:

Comment noted. The text will be clarified.

Page 24. First paragraph under **Category 5 Determination**

The last sentence should be modified as follows:

“These sites will include those identified in the most recent Sediment Cleanup Status Report as well as identified new areas not yet included in the report and will include only stations that exceed the Cleanup Screening Level (CSL) levels.”

City of Everett, Lincoln Loehr

Ecology Response:

Comment noted. The text already states that “These sites will include those identified in the most recent Sediment Cleanup Status Report as well as identified new areas not yet included in the report that exceed the Cleanup Screening Level (CSL) levels.”

Page 24. There needs to be a discussion of **Category 4a Determinations**.

Sediment cleanups are not suitable to call TMDLs. Most sediment cleanups should result in Category 4b determinations. However, in Bellingham Bay, the sediment cleanup was specifically referred to as a TMDL, so that would be a 4a determination. The City of Everett encourages Ecology to

keep sediment cleanup actions separate from formal TMDLs in the future because the two issues do not work well together.

City of Everett, Lincoln Loehr

Ecology Response:

Category 4b is defined as having an approved Cleanup Action Plan, Record of Decision, Corrective Measure, or other regulatory tool for a sediment cleanup site. If a Category 4a determination will be made for sediments it will be on a case-specific basis.

Page 25, Category 3 Determination:

It would be appropriate to identify here that sites where detection levels were higher than sediment cleanup screening levels (CSL) or the sediment quality standard (SQS) and the reported measurements were non-detect, are suitable for Category 3.

It would also be appropriate to identify here that Category 3 should also apply to sites where detections did occur, but were below the quantitation level, and the CSL or SQS was between the detection levels.

The earlier issue based comment re “detection level issues” pertains.

City of Everett, Lincoln Loehr

Ecology Response:

Comment noted. The text will be clarified. The definitions Ecology uses for sediment analytical limits are taken from the Model Toxics Control Act (WAC 173-340-200).

Method Detection Limit (MDL): Minimum concentration of a compound that can be measured and reported with 99% confidence that the value is greater than zero.

Practical Quantitation Limit (PQL): The lowest concentration that can be reliably measured within specified limits of precision, accuracy, representativeness, completeness, and comparability during routine laboratory operating conditions, using department approved methods.

The SMS [WAC 173-204-320(2)(a)] requires that, when laboratory results indicate a undetected chemical, the detection limit shall be reported to be at or below the Marine Sediment Quality Standards (SQS) chemical criteria. The Chapter 7 Quality Assurance and Quality Control Requirements of Sediment Sampling and Analysis Plan Appendix (Ecology Publication No. 03-09-043) note that the PQL shall not be greater than the SQS of the SMS. Therefore the PQL must be at or below the SQS chemical criteria. It is the interpretation of Ecology that, when the PQL is above the SQS chemical criteria it is considered an exceedance of the SMS and cannot be defined as Category 3 if it meets the specified 303d listing criteria. Ecology must enforce the SMS chemical criteria limits for all sediment data.

The Sediment Sampling and Analysis Plan Appendix Table 5 lists the recommended PQL limits for each SMS chemical. If a chemical concentration

is reported as undetected or estimate between PQL and MDL, then the PQL should also be provided.

Therefore, a Category 3 listing based on “below the quantitation limit” would not be appropriate. A Category 3 determination is appropriate if the mean of less than three stations exceeded the SQS and confirmational biological data did not exist.

Confirmatory biological testing would be required when a CSL chemical exceedance occurs which would include MDL or PQL CSL exceedances. Therefore, a Category 5 or 2 listing due to MDL or PQL QA/QC issues can be avoided if confirmatory biological testing is performed in compliance with the SMS and Ecology requirements.

Page 25, Category 2 Determination:

The third bullet describes biological exceedances in terms of “biological points.” What are these? It isn’t clear in the draft policy and the term also is not in the sediment management standards regulation. How are the points tallied? Do biological points play a part in Category 5 determinations? If so, that needs to be shown, and the City requests the right to provide further comments concerning the policy if Ecology describes how biological points might play a part in Category 5. The City understands that sediment bioassays override the results of sediment chemistry results. The City also understands that the contaminated sediment site list should include only those stations exceeding CSL criteria. An undefined biological points system, with no explanation as to how points are tallied, should not result in Category 5 listings for stations that do not exceed CSL criteria.

City of Everett, Lincoln Loehr

Ecology Response:

Comments noted. The text will be clarified to reflect that the point system is in compliance with the SMS WAC 173-204-520(3)(d). Whereas, when any two of the biological tests exceed the SQS (two “hits”) at any one given station it is a CSL biological exceedance for that station and that station is assigned 2 points. When only one biological test exceeds the SQS (one “hit”) at any one given station, it is an SQS exceedance for that station and that station is assigned 1 point. Each station can have a maximum of 2 points and there can be multiple spatially distinct and chemically similar stations per grid. A total of 3 points or greater within a given grid would be required for a Category 5 listing. This would equate to 3 spatially distinct and chemically similar stations exceeding the biological SQS criteria (3 points); or 2 spatially distinct and chemically similar stations one exceeding the CSL and one exceeding the SQS (3 points); or 2 spatially distinct and chemically similar stations each of which exceeds the CSL (4 points); or any combination of SQS and CSL station designations which result in 3 points or greater.

The chemical criterion for a Category 5 listing requires that the mean concentration of each SMS chemical measured at three spatially distinct and chemically similar stations must exceed the CSL within a given grid and meet the assessment criteria in WAC 173-204-510 through 520. If the mean of an SMS chemical concentration at three spatially distinct and chemically similar stations exceeds the CSL within any given grid, but the data do not meet the assessment criteria in WAC 173-204-510 through 520, the grid is a candidate for a Category 2 listing and will require further comprehensive characterization and source control actions.

The most recent chemical and biological data will be used and can override older data on a station by station basis if it is in compliance with the

SMS and Ecology requirements.

SEDIMENT REPORTING LIMITS

Further, on Page 8 another source of confusion is: "For non-detect or non quantifiable data, the "less than" value associated with the method detection limit or practical quantitation limit". This reporting requirement is confusing since it implies that either the MDL or the PQL value can be reported. Based on the evaluation of the MDL and PQL vs. the criterion value required on page 9, it would be important that both the MDL and PQL values should be reported. SEDQUAL allows only one numeric value to be reported.

Betsy Cooper, King County Wastewater Treatment Division

Ecology Response:

Comment noted. You may report, in hard copy, both the PQL and MDL values. As you stated, the SEDQUAL database requires the PQL to be reported. However, Ecology has not planned for a SEDQUAL update but will make note of this recommendation for future updates.

Category 5 Listing on Non-Detect Data – A general issue is raised in applying the Detection Limit issue, covered below, in the context of 303(d) listing. If sediment sample analyses yield non-detect values for any toxic chemical, such a non-detect data should not be considered an automatic sediment exceedance for the purposes of a Cat. 5 - 303 (d) – listing, just because of a high method detection limit. It is true that any analysis must have meaningfully low detection limits for the data to be useful and thus it is reasonable to question the quality of the information obtained when method detection limits are higher than standards. However it is quite a different matter to list a sediment area as contaminated when there has been no detection of a chemical recorded. Such data should result in additional testing, and if other factors indicate concern, perhaps listing the area under Cat. 2, but not an automatic listing process under Cat. 5.

Betsy Cooper, King County Wastewater Treatment Division

Ecology Response:

The chemical criterion for a Category 5 listing requires that the mean concentration of each SMS chemical measured at three spatially distinct and chemically similar stations must exceed the CSL within a given grid and meet the assessment criteria in WAC 173-204-510 through 520. If the mean of an SMS chemical concentration at three spatially distinct and chemically similar stations exceeds the CSL within any given grid, but the data do not meet the assessment criteria in WAC 173-204-510 through 520, the grid is a candidate for a Category 2 listing and will require further comprehensive characterization and source control actions.

The SMS [WAC 173-204-320(2)(a)] requires that, when laboratory results indicate a undetected chemical, the detection limit shall be reported to be at or below the Marine Sediment Quality Standards (SQS) chemical criteria. The Chapter 7 Quality Assurance and Quality Control Requirements of Sediment Sampling and Analysis Plan Appendix (Ecology Publication No. 03-09-043) note that the PQL shall not be greater than the SQS of the SMS. Therefore the PQL must be at or below the SQS chemical criteria. It is the interpretation of Ecology that, when the PQL is above the SQS chemical criteria it is considered an exceedance of the SMS and cannot be defined as Category 3 if it meets the specified 303d listing criteria. Ecology must enforce the SMS chemical criteria limits for all sediment data.

The Sediment Sampling and Analysis Plan Appendix Table 5 lists the recommended PQL limits for each SMS chemical. If a chemical concentration is reported as undetected or estimate between PQL and MDL, then the PQL should also be provided.

Confirmatory biological testing would be required when a CSL chemical exceedance occurs which would include MDL or PQL CSL exceedances. Therefore, a Category 5 or 2 listing due to MDL or PQL QA/QC issues can be avoided if confirmatory biological testing is performed in compliance with the SMS and Ecology requirements.

Page 24. The paragraph beginning with “The method detection limit...”

Delete the last sentence.

The earlier issue based comment re “detection level issues” pertains.

City of Everett, Lincoln Loehr

Ecology Response:

Please see previous comments regarding detection limits.

Sediment Detection Limit Issue - pages 9, 24 – These pages contain discussions regarding detection and quantification limits and how they relate to the SQS or CSLs if the sample data are non-detects. This issue is a very significant one and must be addressed with as much clarity as possible. This section should contain succinct definitions of what is meant by ‘method detection limit (MDL)’ and ‘practical detection limit (PQL)’ and all references in the Policy should use either one or the other. For example, on page 9 in the 4th paragraph the term “detection limit” is used several times where it is assumed that “method detection limit” is meant, but it is not clear. The statement on page 24 (3rd paragraph, first sentence) appears to be clear about this but even in that same paragraph in the 3rd sentence, the term ‘detection limit’ is again used, not being fully clear if it referring to MDL or PQL. There have also been mixed signals from Ecology personnel on this issue so confirming that the detection limit that must be below the SQS or CSL is the “method detection limit” is critical here.

Betsy Cooper, King County Wastewater Treatment Division

Ecology Response:

Comment noted. The text will be clarified. The definitions Ecology uses for sediment analytical limits are taken from the Model Toxics Control Act (WAC 173-340-200).

Method Detection Limit (MDL): Minimum concentration of a compound that can be measured and reported with 99% confidence that the value is greater than zero.

Practical Quantitation Limit (PQL): The lowest concentration that can be reliably measured within specified limits of precision, accuracy,

representativeness, completeness, and comparability during routine laboratory operating conditions, using department approved methods.

The SMS [WAC 173-204-320(2)(a)] requires that, when laboratory results indicate a undetected chemical, the detection limit shall be reported to be at or below the Marine Sediment Quality Standards (SQS) chemical criteria. The Chapter 7 Quality Assurance and Quality Control Requirements of Sediment Sampling and Analysis Plan Appendix (Ecology Publication No. 03-09-043) note that the PQL shall not be greater than the SQS of the SMS. Therefore the PQL must be at or below the SQS chemical criteria. It is the interpretation of Ecology that, when the PQL is above the SQS chemical criteria it is considered an exceedance of the SMS and cannot be defined as Category 3 if it meets the specified 303d listing criteria. Ecology must enforce the SMS chemical criteria limits for all sediment data.

The Sediment Sampling and Analysis Plan Appendix Table 5 lists the recommended PQL limits for each SMS chemical. If a chemical concentration is reported as undetected or estimate between PQL and MDL, then the PQL should also be provided.

Page 9 - General Requirements. This draft Policy addresses the intended protocols for assessing data above and below parameter detection and quantitation levels, and then relative to the regulatory criterion. The comments to be submitted by British Petroleum analyze these issues and provide recommendations. Weyerhaeuser supports these comments.

Ken Johnson, Weyerhaeuser

Ecology Response:

Comment noted. Please see relevant responses to British Petroleum, Cherry Point comments.

There are three situations involving data below detection levels or quantitation levels that must be considered in Ecology's proposed WQP Policy 1-11.

1. **Detection level is lower than the criterion and the measurement is reported as a non-detect.** When a measurement for a parameter is reported as a non-detect, and the method detection level associated with the sample is lower than the applicable criterion, then that is a demonstration of compliance and supports a Category 1 (Meets Tested Criteria) listing.
2. **Detection level is lower than the criterion, the quantitation level is higher than the criterion, the parameter is detected, but the measurement is less than the quantitation level.** When a measurement for a parameter results in a value that is between the detection level and the quantitation level and the applicable criterion is also between the detection level and the quantitation level, then the measurement is not considered to exceed or meet the criterion. The reported detection provides insufficient data to make a clear decision as to compliance, and should therefore be a Category 3 (No Data or Insufficient Data) listing.
3. **Detection level is higher than the criterion and the measurement is reported as a non-detect.** When a measurement for a parameter is reported as a non-detect, and the detection level is higher than the applicable criterion, then the measurement is not capable of demonstrating compliance, and should therefore be a Category 3 listing. (Similarly, when there are detections above the criterion, then that is a demonstration of non-compliance with the criterion and supports a Category 5 listing.)

David C. Ringwald, BP Cherry Point Refinery**Ecology Response:**

1. A Category 1 listing will only be applicable if the sampling and reporting requirements set by Ecology have been met.
2. The SMS [WAC 173-204-320(2)(a)] requires that, when laboratory results indicate a undetected chemical, the detection limit shall be reported to be at or below the Marine Sediment Quality Standards (SQS) chemical criteria. The Chapter 7 Quality Assurance and Quality Control Requirements of Sediment Sampling and Analysis Plan Appendix (Ecology Publication No. 03-09-043) note that the PQL shall not be greater than the SQS of the SMS. Therefore the PQL must be at or below the SQS chemical criteria. It is the interpretation of Ecology that, when the PQL is above the SQS chemical criteria it is considered an exceedance of the SMS and cannot be defined as Category 3 if it meets the specified 303d listing criteria. Ecology must enforce the SMS chemical criteria limits for all sediment data.
3. Please see response to number 2.

The above decision criteria are applicable to all data used in preparing the 303(d) and 305(b) integrated report. In the case of sediment data, the applicable criteria for Category 5 listing purposes are the cleanup screening levels (CSLs) in Part V of Chapter 173-204 WAC and they may be treated similar to the above decision criteria with the added caveat that clear demonstrations of exceedance of an SQS, but not a CSL, is a basis for a Category 2 listing (Waters of Concern) instead of a Category 5 listing.

David C. Ringwald, BP Cherry Point Refinery**Ecology Response:**

Comment noted. The text of the policy states that an SQS exceedance is not the basis for a Category 5 listing.

If Bioassays pass at a particular station, then conditions 1-3 stated above are no longer applicable. The guidance must also acknowledge that biological test results over-ride the results from chemical testing.

David C. Ringwald, BP Cherry Point Refinery**Ecology Response:**

Comment noted. The text will be clarified to reflect that biological data will override chemical data.

BP has some additional concerns with the provisions pertaining to Contaminated Sediments. Specifically, the units of measure must include the fact that some criteria are based on organic carbon normalized concentrations, and there are also criteria associated with biological testing.

David C. Ringwald, BP Cherry Point Refinery

Ecology Response:

Comment noted. The text will be clarified.

Secondly, the methodology used to sum the biological points is unclear and perhaps misrepresented. From conversations with Ecology, it appears that each biological CSL hit equals two points and each biological SQS hit equals one point. A sum of three points equates to a potential category 5 303(d) listing and less than three points (1 to 2) equates to a potential category 2 303(d) listing. This process should be clarified in the text. More importantly, these points should not be counted repeatedly from the same station. Points should be counted on a station-by-station basis and not each biological endpoint within a single station, or “double dipping”. Each station receives either a no Hit, SQS hit, or CSL hit designation. Therefore, at least two stations would be required to reach a category 5 listing. Although the policy does not explicitly state so, newer data, representing the most recent conditions at a site, should carry more weight than older data. Newer data trumps and older data.

David C. Ringwald, BP Cherry Point Refinery

Ecology Response:

Comments noted. The text will be clarified to reflect that the point system is in compliance with the SMS WAC 173-204-520(3)(d). Whereas, when any two of the biological tests exceed the SQS (two “hits”) at any one given station it is a CSL biological exceedance for that station and that station is assigned 2 points. When only one biological test exceeds the SQS (one “hit”) at any one given station, it is an SQS exceedance for that station and that station is assigned 1 point. Each station can have a maximum of 2 points and there can be multiple spatially distinct and chemically similar stations per grid. A total of 3 points or greater within a given grid would be required for a Category 5 listing. This would equate to 3 spatially distinct and chemically similar stations exceeding the biological SQS criteria (3 points); or 2 spatially distinct and chemically similar stations one exceeding the CSL and one exceeding the SQS (3 points); or 2 spatially distinct and chemically similar stations each of which exceeds the CSL (4 points); or any combination of SQS and CSL station designations which result in 3 points or greater.

A sentence should be added to Section 8c., as follows: “Sediment data used to evaluate a grid for 303(d) listing should be attained from independent sampling locations.”

David C. Ringwald, BP Cherry Point Refinery

Ecology Response:

Comment noted. The text will be clarified that the most recent chemical and biological data will be used and can override older data on a station by station basis if it is in compliance with the SMS and Ecology requirements.

Lastly, it appears that only one station with a chemical or biological CSL can result in a 303(d) listing. This approach should not be more conservative than decision criteria used to list sites, as described in the Sediment Cleanup Standards Users Manual and SMS. For Category 5

listings, a minimum of three stations should be evaluated.

David C. Ringwald, BP Cherry Point Refinery

Ecology Response:

Comments noted. The text will be clarified to reflect that the point system is in compliance with the SMS WAC 173-204-520(3)(d). Whereas, when any two of the biological tests exceed the SQS (two “hits”) at any one given station it is a CSL biological exceedance for that station and that station is assigned 2 points. When only one biological test exceeds the SQS (one “hit”) at any one given station, it is an SQS exceedance for that station and that station is assigned 1 point. Each station can have a maximum of 2 points and there can be multiple spatially distinct and chemically similar stations per grid. A total of 3 points or greater within a given grid would be required for a Category 5 listing. This would equate to 3 spatially distinct and chemically similar stations exceeding the biological SQS criteria (3 points); or 2 spatially distinct and chemically similar stations one exceeding the CSL and one exceeding the SQS (3 points); or 2 spatially distinct and chemically similar stations each of which exceeds the CSL (4 points); or any combination of SQS and CSL station designations which result in 3 points or greater.

The chemical criterion for a Category 5 listing requires that the mean concentration of each SMS chemical measured at three spatially distinct and chemically similar stations must exceed the CSL within a given grid and meet the assessment criteria in WAC 173-204-510 through 520. If the mean of an SMS chemical concentration at three spatially distinct and chemically similar stations exceeds the CSL within any given grid, but the data do not meet the assessment criteria in WAC 173-204-510 through 520, the grid is a candidate for a Category 2 listing and will require further comprehensive characterization and source control actions.

Method/Reporting Limits

RETEC encourages Ecology to be specific in regards to how quantitative data (especially for sediments) are handled in situations where laboratory reported concentrations (C_i) are below method detection limits (MDL) or method reporting limits (MRL). MRL is synonymous with practical quantitation limit (PQL) used by Ecology. Please consider the following potential three scenarios:

1. $C_i > \text{MRL}$:

- In the simplest case, if the MRL for the parameter is higher than the applicable criterion and $C_i > \text{MRL}$, then the results demonstrate noncompliance with the criterion and support a Category 5 listing.
- If the MRL is below the applicable criterion, then the criterion and reported concentration are compared to make a Category determination.

2. $\text{MDL} < C_i < \text{MRL}$ (i.e., *reported sample concentration is a “J”-flagged estimate*):

- If the applicable criterion is above the MRL, then the sample is in compliance with the criterion and supports a Category 1 listing.
- If the applicable criterion is between the MDL and MRL then insufficient data is available to make a compliance determination and the measurement neither exceeds nor meets the criterion, justifying a Category 3 listing.
- If the applicable criterion is below the MDL, then the results demonstrate non-compliance with the criterion and support a Category 5 listing.

3. $C_i < \text{MDL}$ (i.e., *sample concentration reported as ND for non-detect or $< \text{MRL}$ with no “J”-flagged estimate of concentration*):

- If the applicable criterion is above the MDL, then the sample is in compliance and supports a Category 1 listing.
- If the applicable criterion is below the MDL, then the sample measurement cannot be used to demonstrate compliance or noncompliance (Category 3).

Dan Berlin, The RETEC Group, Inc.

Ecology Response:

Comment noted. The text will be clarified. The definitions Ecology uses for sediment analytical limits are taken from the Model Toxics Control Act (WAC 173-340-200).

Method Detection Limit (MDL): Minimum concentration of a compound that can be measured and reported with 99% confidence that the value is greater than zero.

Practical Quantitation Limit (PQL): The lowest concentration that can be reliably measured within specified limits of precision, accuracy, representativeness, completeness, and comparability during routine laboratory operating conditions, using department approved methods.

The SMS [WAC 173-204-320(2)(a)] requires that, when laboratory results indicate a undetected chemical, the detection limit shall be reported to be at or below the Marine Sediment Quality Standards (SQS) chemical criteria. The Chapter 7 Quality Assurance and Quality Control Requirements of Sediment Sampling and Analysis Plan Appendix (Ecology Publication No. 03-09-043) note that the PQL shall not be greater than the SQS of the SMS. Therefore the PQL must be at or below the SQS chemical criteria. It is the interpretation of Ecology that, when the PQL is above the SQS chemical criteria it is considered an exceedance of the SMS and cannot be defined as Category 3 if it meets the specified 303d listing criteria. Ecology must enforce the SMS chemical criteria limits for all sediment data.

The Sediment Sampling and Analysis Plan Appendix Table 5 lists the recommended PQL limits for each SMS chemical. If a chemical concentration is reported as undetected or estimate between PQL and MDL, then the PQL should also be provided. Therefore, a Category 3 listing based on “below the MRL” would not be appropriate. A Category 3 determination is appropriate if the mean of less than three stations exceeded the SQS and confirmational biological data did not exist. A Category 1 listing will only be applicable if the sampling and reporting requirements set by Ecology have been met.

For sediment data, the applicable criteria for Category 5 listing purposes are the cleanup screening levels (CSLs) in Part V of Chapter 173-204 WAC. The sediment quality standards (SQSs) in Part III of Chapter 173-204 WAC may also factor into listing. However, exceeding an SQS (and not a CSL) is basis for a Category 2 listing, not a Category 5 listing.

Dan Berlin, The RETEC Group, Inc.

Ecology Response:

Comment noted. The chemical criterion for a Category 5 listing requires that 1) the mean of three spatially distinct and chemically similar stations

must exceed the CSL within one grid and meet the assessment criteria in WAC 173-204-510 through 520 or 2) three spatially distinct and chemically similar stations each exceed the CSL criteria within one grid. This is in compliance with the SMS.

If bioassays pass at a particular station, then the station chemistry is no longer a factor. The guidance should make clear that biological test results over-ride the results from chemical testing.

Dan Berlin, The RETEC Group, Inc.

Ecology Response:

Comment noted. The text will be clarified to reflect that biological test results will override chemical data.

DISSOLVED OXYGEN

Pages 26-27, Dissolved Oxygen

This section needs a lot of work.

City of Everett, Lincoln Loehr

Ecology Response:

Noted, text modified.

There is no mention of Category 3 considerations, yet there may be examples where Ecology has insufficient information to evaluate the human caused allowance of 0.2 mg/L change in marine waters, in which case Category 3 would be appropriate.

City of Everett, Lincoln Loehr

Ecology Response:

The policy text has been clarified to discuss Category 3 for each pollutant parameter. A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

Regarding dissolved oxygen in marine water, the ability to evaluate the human-caused allowance of 0.2 mg/l requires more in-depth study and modeling than is typically available. In these cases, Ecology will base the category determination on the numeric criteria levels, unless information is presented to show that the levels are naturally occurring.

There is no mention of Category 4 considerations, yet there are waterbodies with TMDLs for dissolved oxygen.

City of Everett, Lincoln Loehr**Ecology Response:**

Category 4 determinations are discussed in section 5 of the policy. Ecology has added text to each parameter-specific methodology to explain Category 4 determinations.

There is no mention of the natural component and the human caused component of the dissolved oxygen standards.

City of Everett, Lincoln Loehr**Ecology Response:**

The first paragraph on page 30 notes the human increment above natural conditions. The section on natural conditions (second paragraph on page 17) also describes how natural condition determinations for dissolved oxygen are made.

There is no mention that natural considerations could lead to a Category 1 determination, even though for most of the Puget Sound stations Ecology made such a determination in the most recent 303(d) list.

City of Everett, Lincoln Loehr**Ecology Response:**

Because a natural condition call can be made for any parameter, the scenarios for category determination are not fully described in the parameter-specific sections. The section on natural conditions is discussed on page 16 of the document, and describes when a waterbody segment would be placed in Category 1 for a natural condition determination.

There is no mention that a recognition that human causes could not produce more than a 0.2 mg/L decrease in marine waters could be a basis for a Category 1 determination.

City of Everett, Lincoln Loehr**Ecology Response:**

The allowable decrease in D.O. is discussed in the third paragraph under the Natural Conditions section, page 17.

The policy emphasizes that only continuous monitoring datasets may be a basis for a Category 1 determination, yet the majority of the Puget Sound data are based on single discrete samples and not continuous samples.

City of Everett, Lincoln Loehr

Ecology Response:

Category 1 listings will be reassessed using the new policy requirements. It may well be that many current Category 1 listings will move off of that Category and onto Category 3, unless a natural conditions determination has been made.

Ecology has yet to think through a rational approach for implementing dissolved oxygen standards in naturally stratified waters, such as lakes or marine systems. The statement that for marine waters, detailed vertical profiles should be averaged into increments that are consistent with accepted scientific practices is so vague as to be indeterminable. What does that mean?

City of Everett, Lincoln Loehr

Ecology Response:

Sampling of Marine water columns is performed by partitioning or average a sample value across a vertical depth. For example, instrumentation may collect samples every 0.2 meter but the value reported by the instrument is mean of all values in a meter depth. Ecology recognizes that the individual data points are not available and will evaluate how the data are averaged to determine the precision of the data values reported. Data averaged over the entire water column (which may be up to 30m) may lose the resolution necessary to determine impairment because dissolved oxygen can vary greatly with depth.

Data collected from the water column in lakes will be partitioned (or averaged) by thermal strata. When enough temperature data are collected and the thermocline be used to determine an epilimnion and other strata, data will be partitioned and averaged within each strata. If the lake is shallow and never stratifies or is destratified (well-mixed) as occurs in certain seasons (usually fall and spring for temperate lakes), data will be averaged over the entire water column.

Again, these proposed standards are predicated by a presumption of impairment – a Category 5 listing for dissolved oxygen or temperature needs three grab samples in excess of the criteria. But in order to de-list (at least for temperature and DO), a community must conduct a multi-year continuous monitoring campaign and record not a single exceedance.

Such strong bias towards impairment creates a bloated backlog of waters presumed to need a resource-intensive TMDL. While unfair to its constituents, it can be cheaper for a locality to throw money at a possible problem rather than perform the requisite monitoring to first verify it. This is neither a fair nor wise mandate for public funds.

The presumption of impairment shifts undue responsibility for identifying impaired waterways to the localities, regardless of their resources and expertise. The Water Quality Assessment process should focus on coordinating disparate statewide monitoring efforts to optimize public funds and identify/target genuine problems.

City of Longview, Josh Johnson

Ecology Response:

When an impairment determination has already been made (listed as Category 5), sufficient evidence (i.e. data collected during critical periods), must be available to determine that the waterbody is no longer impaired. Dissolved oxygen concentration cycles daily and seasonally therefore the critical period of both cycles must be included in a dataset to perform an assessment determination that a waterbody segment is no longer impaired. Waters that only show impairment at the most critical period of both of these cycles (early morning and late summer, respectively) may appear to be unimpaired by virtue of daily or annual sampling times.

Monitoring data which show that a waterbody is meeting the dissolved oxygen criterion need only to include the critical period of the year when ambient temperatures are the warmest, sometime between June - September. This is the critical period when we would expect to see the lowest dissolved oxygen concentrations. The waterbody is likely to meet the dissolved oxygen standard in most other cases if it is meeting standards in this case. Similarly, if the waterbody is showing an excursion of the standards (lower oxygen concentration than the standard) in any other part of the year it is likely that the waterbody has an even lower concentration during these critical periods. And, intermittent low dissolved oxygen concentrations can cause degradation leading to impairment of a waterbody. Even a few anoxic events can produce fish kills and lead to degradation of habitat.

Further, in the case of DO, under the Cat 5 determination section it is noted that "...at least one 7-day average daily minimum value..." can trigger a Cat. 5 designation. We would ask Ecology to add language to the policy which would allow for consideration of the potential that a particular year may not be representative of the conditions in that area due to an extreme temperature season.

Betsy Cooper, King County Wastewater Treatment Division

Ecology Response:

Currently approved water quality standards (1997) do not provide for the use of temperature modeling in a waterbody to allow an exemption of the criteria in extreme temperature years. This provision may be approved by EPA in the standards revision proposed by Ecology.

7Q10

Please define "7Q10" low flow rate, perhaps in the Abbreviations section.

City of Longview, Josh Johnson

Ecology Response:

Noted, definition added to the abbreviations section.

7Q10 – While it is understood that the primary purpose for using the 7Q10 low flow rate is to eliminate data collected under extreme low flow conditions. However, the reality of determining the 7Q10 will likely never happen. This seemed to be common knowledge of Ecology Water Quality Staff when presenting at the workshops held for this document. If the 7Q10 criterion is to remain in the document there should be a clarifying statement of its intended use and likelihood of obtaining such information.

Sara Kinney, Nooksack Natural Resources**Ecology Response:**

7Q10 flow data is available for some streams in the state and may be calculated from available data when necessary. However, Ecology has clarified in the text that 7Q10 information is NOT a requirement when assessing the data but it will be considered as described in the policy when data is available to determine the 7Q10 low flow and high flow values.

pH

Page 28, pH

There is no mention of Category 4 or Category 3 Determinations. There could be pH differences from natural causes that would therefore meet Category 1, and conversely, there might be insufficient information to evaluate natural causes, in which case Category 3 might be appropriate. If there is a TMDL, or other control plan for pH, then Category 4 would be appropriate.

City of Everett, Lincoln Loehr

Ecology Response:

Category 4 determinations are discussed in section 5 of the policy. Ecology has added text to each parameter-specific methodology to explain Category 4 determinations.

The policy text has been clarified to discuss Category 3 for each pollutant parameter. A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

Natural Conditions determinations are discussed in section 7 of the policy.

PHOSPHORUS

Pages 29-30, Total Phosphorus in Lakes

There is no mention of Category 4 determinations, yet there have been phosphorus plans for lakes that warrant Category 4.

City of Everett, Lincoln Loehr

Ecology Response:

Category 4 determinations are discussed in section 5 of the policy. Ecology has added text to each parameter-specific methodology to explain Category 4 determinations.

There is no mention of Category 3 determinations, yet the discussions for Categories 1, 2 and 5, leave some gaps, which logically would become

category 3. For example, if there were less than 4 samples, and none of them exceeded standards, it can't qualify for Category 1, 2 or 5. That would make a case for Category 3.

City of Everett, Lincoln Loehr

Ecology Response:

One can make the assumption that if analysis of data does not qualify for categories 1, 2, 4, or 5, then category 3 would be the appropriate category. Language has been added to clarify this.

TEMPERATURE

The temperature standards, both those currently in effect, and those proposed for adoption, have several components. The components include a numeric component, a provision that the natural may be higher than the numeric, and a provision that when the natural is higher than the numeric, that human causes may not contribute more than 0.3 degrees C in excess of the natural.

Ecology needs to recognize and acknowledge that the 0.3 degrees C allowance is the most important part of the temperature standards. All the various numeric components do is to serve as a trigger for when it is necessary to consider the 0.3 degrees C component. If human causes are not reasonably expected to produce more than a 0.3 degrees C increase to the water, then the water meets the temperature standards, regardless of the numeric data and regardless of any anguish or hair-splitting analysis concerning what is natural. The result of a 0.3 degrees C analysis trumps everything else. An abundance of numeric data is meaningless if Ecology has a little or no information or understanding on how to evaluate the most important part of the temperature standards, the 0.3 degrees allowance.

Note that for every single Category 5 listed fresh water body for temperature in the current 303(d) list, Ecology staff from the regional offices acknowledged that they were unsure if human causes were reasonably adding more than 0.3 degrees C.

Ecology has persisted in listing waters as exceeding the state's temperature standards without due consideration of the most important part of the standards. EPA has backed the state in such an approach, even though EPA also approved the currently applicable state temperature standards and even included a similar human caused allowance provision in their regional temperature guidance.

The 303(d) policy for the last several listing cycles has effectively changed the state's temperature standards. With its broad application, it is the equivalent of a rule, yet there has not been any rule-making process. The 0.3 degrees C allowance in the state standards has not been changed, and is not proposed for change in the current rule making. Ecology may not selectively disregard the most significant part of the state's temperature standards.

There are alternatives whereby Ecology can acknowledge when there is an insufficiency of data or information and provide a more frank assessment. The alternatives address the uncertainty with the 0.3 degrees C allowance in the standards. The alternatives include:

List such waters in Category 2 as Waters of Concern because they exceed the numeric component of the multi-part temperature standards, while acknowledging that there is not sufficient information to evaluate if the 0.3 degrees C allowance is met.

List such waters in Category 3 as No Data or Insufficient Data because there is not sufficient information to evaluate if the 0.3 degrees C allowance is met.

List such waters in both Categories 3 and 5, qualifying each with an asterisk that explains that the listing is in two places because there is clear information that the numeric criterion is exceeded, but there is insufficient information to evaluate the 0.3 degree C component.

Create and use a subset of Category 5, called “5-T” which would be just for temperature, and would be used just for those waters where Ecology was unsure whether human causes could reasonably be adding more than 0.3 degrees C. Where Ecology was reasonably sure human causes were adding more than 0.3 degrees C, “5-T” would not be used, and the water would be listed unambiguously as Category 5.

Any of the above alternatives would provide the public and EPA with a more frank assessment than the current practice of listing as Category 5 based on the numeric component alone while showing no consideration of the human caused allowance in the standards. The last two alternatives would also assure EPA that the waters remained a priority to address with TMDL studies. TMDL studies in turn would later allow determination that the waters are either Category 1 (Meets Criteria), or are Category 5, and the studies may be used in establishing TMDLs.

City of Everett, Lincoln Loehr

Ecology Response:

The department does not agree that the most important part of the temperature standard is the 0.3 degrees C above natural conditions. The numeric temperature criteria are based on the biological needs of cold-water fish species to ensure that healthy water temperatures are attained where and when they are possible in the state. Increased temperatures can impact salmonids in many ways, and can affect the availability of dissolved oxygen. Salmon and other cold-water species are an important and valued resource in our state, and striving to achieve healthy biological conditions is a goal that the standards support. Assuming that the 0.3 degrees C allowance is the only component worth considering makes the assumption that current water temperatures are natural, or the best that they can be. Unfortunately, decades of urbanization, forest practices, agriculture, and other human-related impacts that have affected stream riparian habitat or hydrology make that assumption incorrect.

Determining whether human causes are contributing more than 0.3 degree C in excess of the natural condition is a detailed process that involves more in-depth monitoring and data collection, research on what sources exist, and modeling to determine what existing conditions are and what full shade potential for that site would require. Only after this level of detail can you extract whether or not a combination of human sources is greater than 0.3 degrees C. As we have explained previously, this process occurs when a TMDL is done on a waterbody identified as exceeding numeric standards. The 303(d) listings based on numeric temperature standards (including a review of whether there are human impacts that could be contributing to the exceedance) trigger the subsequent TMDLs. Further, in previous temperature TMDLs that have been done, the difference between the existing conditions (including sources) and the full shade potential has been greater than 0.3 degrees C, indicating that the water was not meeting that part of the standard.

The first two alternatives you present have been considered in the past and it has been determined that they would not be appropriate. The third

alternative is not possible (our data tools do not allow the same location/parameter to be in two different categories. The subset you describe in your last alternative as “5-T” is in fact the same as the Category 5 temperature listings we now have, where the department is unsure whether human causes could reasonably be adding more than 0.3 degrees C. At this time, we do not know of a methodology that could easily determine whether the human causes are greater than the threshold allowed. Therefore, in the absence of this additional information, waters are placed in Category 5. We have tried to be clear in the policy that this is our intention (see page 36).

We do appreciate your concerns about prioritization of temperature TMDLs in light of the high number of Category 5 listings. We continue to look at ways to deal with temperature listings more effectively and how to make sure that higher priority waters get dealt with first. We are considering alternatives to the traditional temperature TMDLs, as well as taking a multi-parameter watershed approach to improving important salmon habitat that includes temperature.

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Two, three, and five years of continuous monitoring with no exceedences for temperature, TDG, and DO is completely absurd. Known polluters with control of their effluent are given more leeway than that. Let’s be real, our community has difficulty funding schools, drug court, and ‘Level III’ jail space. How much more observation and testing does a doctor need?

City of Longview, Josh Johnson

Ecology Response:

DO and Temperature

The requirement of no exceedances of dissolved oxygen and temperature parameters is based on the seven-day average daily minimum (7DADMin) and the seven-day average daily maximum (7DADMax), respectively. The 7DAD values are those derived from continuous datasets that may include some excursions of the criteria. However the rolling average of these values over a 7-day period is the value that is compared to the numeric criteria. A single-day will not preclude the waterbody segment from being listed on Category 1.

Furthermore, dissolved oxygen and temperature concentrations cycle daily and seasonally therefore the critical period of both cycles must be included in a dataset to perform an assessment determination that a waterbody segment is no longer impaired. Waters that only show impairment at the most critical period of both of these cycles may appear to be unimpaired by virtue of daily or annual sampling times. When an impairment determination has already been made (listed as Category 5), sufficient evidence (i.e. data collected during critical periods, must be available to determine that the waterbody is no longer impaired.

Continuous monitoring data that show that a waterbody is meeting the criteria need only to include the critical period of the year when ambient temperatures are the warmest, sometime between June - September. This is the critical period when we would expect to see excursions of the criteria. The waterbody is likely to meet the criteria in most other cases if it is meeting them in this case. Similarly, if the waterbody is showing an excursion of the water quality standards for temperature and dissolved oxygen in any other part of the year it is likely that the waterbody has an even larger excursion from the standards during these critical periods. And, intermittent excursions of temperature and dissolved oxygen can cause degradation leading to impairment of a waterbody. Even a few anoxic events or high ambient temperature occurrences can produce fish kills and

lead to degradation of habitat.

Total Dissolved Gas (TDG)

The requirement of no exceedances of TDG is based on the 12-hour average of a continuous dataset. A single exceedance will not preclude the waterbody segment from being listed on Category 1.

Temperature data does not fit the EIM database format. Please include in this section, how temperature data should be submitted. If there are other parameters that do not fit or need special consideration please note that in this section.

Additionally, the EIM database data entry is quite cumbersome, and will require a great deal of quality control on Ecology's end. Does Ecology have adequate staff for this?

Sara Kinney, Nooksack Natural Resources

Ecology Response:

Derived data values from continuous datasets such as dissolved oxygen seven-day average daily minimum (7DADMin) and the temperature seven-day average daily maximum (7DADMax) should be provided to Ecology as derived values. EIM does accept these derived values. Please contact Ecology for information about how these values are derived. On a case-specific basis, Ecology may accept raw continuous datasets if the data submitter is unable to calculate these values. The policy has been clarified to explain the submission and use of continuous datasets.

Ecology has designated staff to provide training and assistance for submittals to the Water Quality Assessment. The level of data audit of submitted data will be determined by available resources as describe in Policy 1-11, Chapter 2, section 8. As part of Water Quality Data Act (WQDA) codified in RCW 90.48.570 through 90.48.590 Ecology will report to the legislature the final Policy 1-11, Chapter 2 and may request additional resources necessary to fully implement this policy.

Page 32 – Temperature, Category 5 Determinations. Ecology is obliged to review all elements of the approved water quality standard that apply to water temperature. These elements include data-based determinations on natural conditions, waterbody temperature and, if the waterbody is above the base numeric criteria, whether the human-caused 0.3°C. increment is exceeded. The Water Quality Data Act and WAC 173-201A require this level of scientific inquiry.

Ken Johnson, Weyerhaeuser

Ecology Response:

The section on Natural Conditions starts on page 16 and describes how the department makes natural condition determinations. Temperature is discussed in more detail on page 17. The section on temperature starting on page 35, describe how temperature data is assessed, including the 0.3 degree human increment.

As stated in the temperature section, the department will place listings in Category 5 for exceedances of numeric criteria even if it is not known whether the human causes are above the threshold. Determining whether human causes are contributing more than 0.3 degrees C in excess of the natural condition is a detailed process that involves more in-depth monitoring and data collection, research on what sources exist, and modeling to determine what existing conditions are and what full shade potential for that site would require. Only after this level of detail can you extract whether or not a combination of human sources is greater than 0.3 degrees C. As we have explained previously, this process occurs when a TMDL is done on a waterbody identified as exceeding numeric standards. The 303(d) listings based on numeric temperature standards (including a review of whether there are human impacts that could be contributing to the exceedance) will trigger the subsequent TMDLs.

This draft Policy 1-11 does not commit to an evaluation based on the water quality standards. Category 5 listing of waterbodies above the base numeric criteria, along with some loose commitment to evaluate natural conditions and human-induced temperature impacts later, is a choice made solely on convenience. Consistent with the draft Policy 1-11, if information to assess the causes of elevated temperature in a waterbody is not available, the waterbody should be listed in Category 2 or 3.

Ken Johnson, Weyerhaeuser

Ecology Response:

Ecology requested that EPA provide clarification regarding listing decisions made using both the numeric criteria and the natural conditions provision, especially when the human contribution is unknown. EPA stated that any waterbody whose ambient condition exceeds the applicable numeric criteria should be listed on the 303(d) list unless the state can demonstrate that the exceedance is due to non-anthropogenic natural conditions. They further noted that judgments made about impairments should be made with readily available data and not deferred or delayed because of data gaps.

In the 2004 listing process, the department went through additional analysis to determine natural conditions and the potential human contributions that might be affecting temperature listings. All of the temperature listings were plotted on maps with land use activities (such as agricultural, forestry, and urban areas, and industrial sites) to assist in determining which waterbodies are not influenced by human activity. In addition each regional office reviewed the listings to determine where potential temperature impacts existed due to human contribution and where they did not exist. During that time, staff were asked whether they could make a reasonable determination that human contributions, if present, were greater than 0.3 degrees C. They indicated that the significance of human contributions was unknown without further monitoring, analysis and modeling. Listings were placed on Category 5 with the expectation that further study would help determine the extent of human causes. Ecology expects to follow this process again for the 2006 listing process.

NATURAL CONDITIONS

Delete the third paragraph under Natural Conditions. It inconsistently applies only to temperature and DO and it retards the assessment process.

The presumption of impairment biases the consideration of natural conditions. On one hand, the Policy resolves to list a segment “in Category 5 when human activities cause, or have strong potential to cause, significant impacts in addition the natural conditions” with “no presumption either way.” However, the policy goes on to state that “the waterbody segment will be placed in Category 5 [if human activity contributes to just] a small

increment” of temperature or DO impairment. This approach isolates local partners because they have little incentive/money to quantify a minor human contribution and/or prepare for a Category 5 required clean-up of an otherwise naturally ‘impaired’ waterway.

Ecology should consider a third-party expert narrative regarding natural conditions in the listing phase. Only when waterbodies are known to be impaired should the “small increment” of human activity be quantified and addressed.

City of Longview, Josh Johnson

Ecology Response:

Because the allowable change due to human actions for both temperature and dissolved oxygen are tied directly to natural conditions, we believe it is important to maintain this language in the section on natural conditions.

Unfortunately, with the many sources that can contribute to increases in temperature or decreases in dissolved oxygen, determining the amount of human allowance is very difficult. We are not sure what you mean by isolating local partners, but do want to clarify that, in the absence of information showing what level of human actions are contributing to the exceedances, the waterbody will be listed in Category 5 which will trigger a TMDL. This will allow sources to be identified and improvements to be made on the waterbody.

We agree that trying to determine the increment of human activity is difficult, and note that it is typically determined after a waterbody has been listed, when a TMDL is being prepared.

When describing the “small increment” allowable for DO and Temperature in relation to human action, please refer to the WAC, since these “small increments” are defined and quantified there. If the increment is below the threshold and is not considered a violation there is no justification in making the case that it is due to natural conditions. That statement should be removed from the document.

Additionally, how will Ecology determine if there is adequate data and/or information to determine natural historic conditions?

Sara Kinney, Nooksack Natural Resources

Ecology Response:

Language has been added to clarify the WAC that pertains to the allowable human increment for D.O. and temperature.

We believe it is important to maintain the sentence regarding how the human allowance information would be used. Since this provision only occurs when the waterbody is naturally higher than the numeric criteria, if it is lower than the allowance one can assume the condition is natural.

Regarding historic conditions, the determination of what is adequate is typically made when a TMDL or further study is done. The decision to make a natural conditions call for the 303(d) list will consider information presented on natural historic conditions, but also assesses whether human actions may be contributing.

Because determining natural conditions can/will be very complex, and because it already has its own section under “Other Assessment Considerations” within this document it should not be discussed in the assessment methodology section, but rather keep discussion of determining natural conditions within that section of the document.

Sara Kinney, Nooksack Natural Resources

Ecology Response:

We have added language to focus the reader interested in natural condition determinations to this section.

Dissolved Oxygen and Natural Conditions – pages 17 and 26 – We acknowledge Ecology’s recognition in the DO section that for Puget Sound has naturally occurring conditions of ocean waters movement that can significantly affect DO. However, in the 3rd paragraph on page 17 where Natural Conditions analysis is discussed, this section seems to indicate that in all cases, where there could be human input, that “In the absence of data to determine whether the exceedance is above or below the threshold allowance, the waterbody segment will be placed in Category 5.” The low DO in some areas of Puget Sound seems to be a good example of where there may be times when it is clear that, even though full data about the human-induced effects may be lacking, that the natural effects are driving the condition. Therefore we would suggest modifying the statement on page 17 (quoted above) in a way that allows for situations like the Puget Sound DO situation to not require additional proof for a Natural Conditions determination.

Betsy Cooper, King County Wastewater Treatment Division

Ecology Response:

Language has been added to clarify that under certain circumstances the human threshold may not be known, but the natural condition is the driver for the exceedance. In these instances a waterbody may be placed in Category 1 or 2, depending on the circumstances.

Page 17 – Natural Conditions. The allowance for the 0.3° C increase for waterbodies exceeding numeric criteria is an adopted and approved component of WAC 173-201A. While it is certainly convenient for the agency to make assumptions about data and causes of warming, this policy choice to make a Category 5 listing even in the absence of relevant data is inconsistent with the literal WAC 173-201A criteria and the Water Quality Data Act. Ecology has an affirmative obligation to produce data which directly assesses this portion of the WQ standard when making regulatory determinations for the Integrated Report. Note these sections from the Water Quality Data Act:

RCW 90.48.570

- 2) The legislature intends to ensure that credible water quality data is used as the basis for the assessment of the status of a water body relative to the surface water quality standards.

RCW 90.48.580

(1) The department shall use credible information and literature for developing and reviewing a surface water quality standard or technical model used to establish a total maximum daily load for any surface water of the state.

(2) The department shall use credible data for the following actions after June 10, 2004:

(a) Determining whether any water of the state is to be placed on or removed from any section 303(d) list;

Ken Johnson, Weyerhaeuser

Ecology Response:

Ecology requested that EPA provide clarification regarding listing decisions made using both the numeric criteria and the natural conditions provision, especially when the human contribution is unknown. EPA stated that any waterbody whose ambient condition exceeds the applicable numeric criteria should be listed on the 303(d) list unless the state can demonstrate that the exceedance is due to non-anthropogenic natural conditions. They further noted that judgments made about impairments should be made with readily available data and not deferred or delayed because of data gaps.

The credible data policy addresses the accuracy of the temperature data and the representativeness of the data in determining the status of a water body relative to the surface water quality standards. The WQDA does not set up an affirmative obligation to establish cause of a temperature increase. That is the role of a verification or TMDL study which uses credible information to identify and quantify the sources of temperature increases.

We find that there is an inconsistency within the Chapter. On page 17 (Natural Conditions), Best professional judgment *is* encouraged in order to determine natural conditions: “A determination regarding natural conditions will require information and data to validate the condition, with no presumption either way. A decision to place a waterbody segment in Category 1 because the impairment is from natural conditions will require, at a minimum, identification of a likely natural source or process sufficient to produce the impairment and information to support that there are no human impacts or none in excess of the allowable limits. The assessment may include well-reasoned best professional judgment, but this must be accompanied by information that supports the determination.” Yet, best professional judgment is not encouraged elsewhere – including the assessment of academic research data.

Heather Trim, People for Puget Sound

Ecology Response:

Ecology will use and assess all data that meet credible data and QA requirements regardless of where it comes from. Best professional judgment is used in many situations, including handling and assessing data. However, the Water Quality Data Act and the related policies are clear that if data does not meet credible data requirements, or no information is provided to the department in order to make that determination, the data cannot be

used for Water Quality Assessment purposes.

TOTAL DISSOLVED GAS

Pages 33-34, Total Dissolved Gas

There is no mention of Category 4 determinations, even though there has been at least one TMDL developed in this state for TDG.

City of Everett, Lincoln Loehr

Ecology Response:

Category 4 determinations are discussed in section 5 of the policy. Ecology has added text to each parameter-specific methodology to explain Category 4 determinations.

There is no mention of Category 3 determinations, yet there must be some situations that would fall under Category 3.

City of Everett, Lincoln Loehr

Ecology Response:

The policy text has been clarified to discuss Category 3 for each pollutant parameter. A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology's assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

The section on Category 1 Determination asks for a minimum of 3 years of continuous monitoring during the peak runoff season in years with peak flows reaching 7Q10 levels. 7Q10 flows are low flows, so it isn't clear what Ecology wants here.

City of Everett, Lincoln Loehr

Ecology Response:

The 7Q10 flows that are relevant for TDG are the flood flows also described as 7Q10 high flows.

TOXIC SUBSTANCES

Risk Assessment and Sample Assumptions – page 37 - The BCFs used by the Toxics Rule are fairly high for (e.g.) PCBs but the consumption rate is pretty low (6.5 gms/day). How will conflicting risk assessment assumptions be aggregated?

Betsy Cooper, King County Wastewater Treatment Division

Ecology Response:

As stated in the State Water Quality Standards, concentrations of toxic substances without state numeric criteria will be determined based on

USEPA Quality Criteria for Water, 1986, and as revised, and other relevant information as appropriate. Human health-based water quality criteria used by the state are contained in 40 CFR 131.36 (known as the National Toxics Rule) and describe BCFs and consumption rates used to determine Human Health criteria.

However, impairment determinations based on narrative standards for all parameters follow the policy described in section 6 of the policy; “Assessment of Information using Narrative Criteria”. If an assessment is based on data or information other than numeric criteria expressed in the current State Water Quality Standards or in 40 CFR 131, will be considered in the assessment based on the narrative criteria describe in the WQ standards, and according to section 6 of Policy 1-11. When applicable, concentration values other than those included in the standards may be used for category determination based on the narrative standards as described in the Policy 1-11.

Further, for single-fish samples (3 individuals or a composite of 5) are whole acceptable or only fillet tissue?

Betsy Cooper, King County Wastewater Treatment Division

Ecology Response:

Criteria apply to the edible portion of fin fish. As stated in the policy fin fish samples concentration values must be from the fillet portion the fish. Whole fish concentrations will not be considered in the assessment.

“Fin fish fillet tissue samples, whole shellfish tissue samples, and edible shellfish muscle samples must have at least three single-fish samples or a single composite sample made up of at least five separate fish of the same species. Fin fish fillet tissue samples may be analyzed with skin on or skin off.”

Finally we have concerns about listing a water body as category 5 based on 1 composite sample. It is not clear there is concurrence on what resident fish means. For some species there can be a blurry connection between a population’s area of exposure and one particular fish sample location’s exceedance. This should be looked at more closely.

Betsy Cooper, King County Wastewater Treatment Division

Ecology Response:

Ecology recognizes that the determination of a resident fish can be challenging, however, bioaccumulation of a toxic substance in resident waters cannot be ruled out unless compelling evidence exists that the species likely accumulated the substance while in another waterbody. (Such as in the case of hatchery-raised fish stocking). Ecology asks for input on proposed listings during each assessment process. Information concerning possible pollutant sources other than local sources may be submitted to Ecology for evaluation. Such evaluations, as well as verification studies, are often part of the review Ecology performs before a TMDL study is begun. This information can append a listing and result in a different Category determination.

NCASI has reviewed the June 1, 2006, Draft *Assessment of water quality for the Clean Water Act sections 303(d) and 305(b) integrated report*. That document proposes the use of toxicity equivalent factor (TEF) adjusted contributions from seventeen PCDD/Fs in assessing exceedances of Washington State's 2,3,7,8-TCDD water quality criterion (WQC) for the purpose of identifying impaired waters for inclusion on the 303(d) list. NCASI believes that the proposed scheme is flawed because it fails to account for the fact that each dioxin congener has its own unique chemical and toxicological properties.

It is widely accepted that more than 95% of human exposure to and subsequent risk from PCDDs and PCDFs in aquatic systems is from ingestion of fish. Thus, derivation of a protective WQC involves back calculating water column concentrations from fish tissue concentrations. This requires accurate measurements of chemical fate and transport, including an accurate measure of the relevant bioaccumulation factor (BAF) and the relative "bioavailability" of a chemical. Although the environmental behavior of 2,3,7,8-TCDD has been widely studied, very little is known about the behavior of other PCDD/Fs in the environment. Thus, adoption of the TEF approach to incorporating additional dioxin congeners in a single measure of dioxin toxicity ignores the large number of confounding exposure variables that are typically addressed in human health risk assessment. As a consequence, adoption of this approach may end up focusing resources on dioxin/furan congeners that have little potential for accumulating in fish and, ultimately, for posing risk to humans.

In addition to the factors impacting human exposure noted above, there are issues concerning the ultimate validity of the TEF/TEQ approach to ranking or summing toxicity. Briefly, adoption of a TEF/TEQ approach assumes that the most critical effect of all PCDDs/PCDFs is mediated through the Ah receptor even though studies on the affinity and subsequent toxicity of different congeners for this receptor are conflicting. In addition, the TEQ system is based on the unproven premise that the toxicity of individual PCDDs/PCDFs is additive when combined in mixtures. Finally, an assumption that the dose-response curve for TCDD is parallel to that for individual PCDD/PCDF congeners is another hidden premise of the TEF/TEQ method.

The above discussion notwithstanding, we are aware that some states have incorporated the TEF/TEQ approach in setting dioxin WQC. If Ecology persists in following this path NCASI suggests that, at a minimum, an approach incorporating some weighting for differential bioaccumulation be adopted; e.g., use of bioaccumulation equivalency factors (BEF) as implemented by EPA in setting WQC for the Great Lakes System. Finally, NCASI questions the adoption of the TEF/TEQ approach for the purposes of 303(d) listings before promulgation of a WQC derived likewise. From a procedural perspective it would seem necessary to adopt this methodology as part of setting the WQC prior to applying it for evaluating waters for 303(d) listing.

Jeff Louch, National Council for Air and Stream Improvement, Inc.

Ecology Response:

Ecology agrees that the bio-concentration characteristics of PCDD and PCDF congeners are not yet certain and will therefore list exceedances of 2,3,7,8 TCDD in Category 2 if the assessment is based on TEQ derived values. Non-TEQ derived 2,3,7,8 TCDD congener values, which exceed the human health criteria, will still be listed in Category 5.

Page 36 – 2,3,7,8-TCDD. WAC 173-201A incorporates the National Toxics Rule (40 CFR 131.36). The NTR includes water column numeric criteria for 2,3,7,8-TCDD. This draft Policy 1-11 seeks to effectively change the adopted water quality criterion by accounting for PCDD/F congeners through a TEQ process. Whatever Ecology believes the merits of this idea might be, the agency at this point is limited to evaluating

2,3,7,8-TCDD against the adopted water quality criteria for this single congener.

Ken Johnson, Weyerhaeuser

Ecology Response:

Ecology agrees that the bio-concentration characteristics of PCDD and PCDF congeners are not yet certain and will therefore list exceedances of 2,3,7,8 TCDD in Category 2 if the assessment is based on TEQ derived values. Non-TEQ derived 2,3,7,8 TCDD congener values, which exceed the human health criteria, will still be listed in Category 5.

The proposed policy does not support category 5, 4, or 2 designations based on tissue concentrations that may indicate harm or potential harm to biological resources. This is not consistent with the narrative criteria for toxics in WAC 173-201a-260: “concentrations must be below those which have the potential ... to ... cause acute or chronic conditions to the most sensitive biota...” Action Team staff recommend that Ecology amend this section to allow evaluation of tissue data relative to critical tissue values established for the protection of fish and wildlife.

Brad Ack, Puget Sound Action Team

Ecology Response:

Impairment determinations based on narrative standards for all parameters follow the policy described in section 6 of the policy; “Assessment of Information using Narrative Criteria”. If an assessment is based on data or information other than numeric criteria expressed in the current State Water Quality Standards or in 40 CFR Part 131, will be considered in the assessment based on the narrative criteria described in the WQ standards, and according to section 6 of Policy 1-11. Although the applicable narrative rule is cited in the parameter-specific sheets in the policy, Ecology tried to limit the information in these sections to those assessments based on numeric standards as most narrative assessments are performed on a case-specific basis. When applicable, concentration values other than those included in the standards may be used for Category 2 determinations.

The discussion in this section on the use of bioassay results addresses only how these results would be used as the basis of a Category 5 determination. Therefore, we suggest that Ecology move this discussion to the Category 5 paragraph of this section.

Brad Ack, Puget Sound Action Team

Ecology Response:

Noted, text modified

Pages 35-38, Toxic Substances.

The discussion at the bottom of page 35 pertaining to metals should also emphasize the need to use clean metals sampling and analytic methods.

City of Everett, Lincoln Loehr

Ecology Response:

As stated in the policy “Metals must be sampled using clean sampling and analytical techniques, or appropriate alternate sampling procedures or techniques. (For guidance, see EPA, *Method 1669: Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels*, 1996.)” Emphasis on clean metals sampling and analytical methods was added to the metals discussion.

A reference to standard operating procedures for metals sampling will be added to the credible data policy when it becomes available from the Environmental Assessment Program.

Emphasis on clean metals sampling and analytical methods was added to the metals discussion.

The use of TEQs and TEFs does not appear to be supported by the state’s standards.

City of Everett, Lincoln Loehr

Ecology Response:

Ecology agrees that the bio-concentration characteristics of PCDD and PCDF congeners are not yet certain and will therefore list exceedances of 2,3,7,8 TCDD in Category 2 if the assessment is based on TEQ derived values. Non-TEQ derived 2,3,7,8 TCDD congener values, which exceed the human health criteria, will still be listed in Category 5.

There is no mention of Category 4 or Category 3 determinations.

City of Everett, Lincoln Loehr

Ecology Response:

The policy text has been clarified to discuss Category 3 for each pollutant parameter. A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology’s assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination according to this policy.

Category 4 determinations are discussed in section 5 of the policy. Ecology has added text to each parameter-specific methodology to explain Category 4 determinations.

Page 38. The requirements for at least twenty water column data sample values within a three-year period for a Category 1 determination is excessive. Consider a parameter such as DDT, which has been long out of production and use. Data for Puget Sound do not indicate any problems with DDT in the water, but there might not be twenty sample values in the last 3 years.

City of Everett, Lincoln Loehr**Ecology Response:**

We concur that twenty sample values within the last three years is unlikely to be available in some cases. The number of sample values needed to place a segment in Category 1 for a toxic pollutant has been reduced to ten.

Page 15 – Assessment Methodology, and Page 35 Toxic Substances. The allowance Ecology grants itself in the last paragraph to consider instantaneous measurements as representing the acute and chronic averaging periods specified in water quality standards regulations is both technically unsupportable and a poor policy choice. Consider the trade-off. With this flexibility Ecology would privilege itself to place a waterbody on the Category 5 list after collecting two grab samples indicating a metals concentration slightly above chronic numeric criteria. This would be self-justified because daily grab sampling or composite sampling for the four-day period exposure period directed by the chronic standard would represent too much of a resource burden to the agency. Yet placement of the waterbody on the Category 5 list commits the agency to a much, much more expensive administrative process to produce a TMDL.

This “instantaneous measurement” provision is not consistent with the spirit and application of the Water Quality Data Act. It should be removed.

Ken Johnson, Weyerhaeuser

Ecology Response:

The Water Quality Data Act (WQDA) requires that water sample data be representative of the water body at time of sampling. The WQDA speaks nothing about the expansion of representativeness to other time periods. The basis for assuming that sample data can be extrapolated temporally is not a new notion, but one that has been followed throughout the nation and is addressed in EPA guidance section IVD.2. of the EPA guidance for 2006 Assessment.

DETECTION LIMITS

The draft policy addresses the issue of detection limits and non-detect data in several places, including page 9 and pages 24-25. On pages 24-25, which describes the listing considerations for contaminated sediments, Ecology states that,

“...where the detection limit is over the SQS the sample will be considered to exceed the SQS.”

Non-detect data should never be used as a basis for listing waters or sediments as exceeding the applicable standards. When measurements are reported as non-detect, and the detection level is higher than a standard, the only thing that can be determined is that the measurement is insufficient to determine compliance with the applicable standard. Similarly, when measurements are above the detection limit, but less than the practical quantitation level, and the detection limit is below the applicable standard, the data, whether measures of water quality or sediment quality, are insufficient to determine compliance with the applicable criterion. In these cases, the measurement may only support a Category 3 determination (No Data or Insufficient Data).

The policy needs to unambiguously state that regardless of how detection levels compare to standards, non-detect measurements may not be used to assert that a station exceeds applicable standards and belongs in Category 5. The policy needs to unambiguously state that such measurements only support a Category 3 determination. The policy needs to include these situations as examples of unusable data in the description of Category 3 on pages 11 and 12.

City of Everett, Lincoln Loehr

Ecology Response:

The response to this comment is media-specific because of the regulations which govern the handling of non-detect data for sediments.

For water column and tissue data, non-detects are not used as a basis for exceeding WQS. When the criterion is less than the detection value, the parameter/segment combination remains in Category 3 if no other data are available. A more sensitive analytical method should be used to determine in which category the parameter/segment combination belongs. The EIM data system accepts non-detects as “analyte not detected at or above a specified concentration.” The level of detection will be compared to published EPA method detection levels.

The text has been modified to incorporate this comment for water column and tissue data that are below detection levels.

TURBIDITY

Where is determining what the background NTU values for a waterbody discussed?

Sara Kinney, Nooksack Natural Resources

Ecology Response:

The background value for turbidity is gathered at a location upgradient from the activity that is being investigated. Further explanation has been added to the text of the policy.

Page 39, Turbidity

There is no discussion of Category 4 or 3 determinations.

City of Everett, Lincoln Loehr

Ecology Response:

Category 4 determinations are discussed in section 5 of the policy. Ecology has added text to each parameter-specific methodology to explain Category 4 determinations.

The policy text has been clarified to discuss Category 3 for each pollutant parameter. A waterbody segment will be placed in Category 3 when the available data are insufficient for any other category determination. This information will be maintained in Ecology’s assessment database for future use. As additional data and information become available, Ecology will again assess all available data to make a new category determination.

according to this policy.

DATA AGE

Ecology has used its discretion to bias the assessment process. Specifically, older data lacking adequate quality documentation is used if it supports a listing.

City of Longview, Josh Johnson

Ecology Response:

Historic data may continue to be used in certain situations. We cannot expect that the past gatherers of historic data anticipated future QA/QC requirements. Older data may also be used to support placement in Category 1 if the QA practices met the norm of the time.

Ecology has the best of intentions – erring in the environment’s favor. However, basing Category 5 listings on estimates and/or data sets lacking documented water quality controls is unacceptable. Premature or unwarranted listings are not only costly to area stakeholders, but they may discourage desired developments and misfocus precious attention on non- or minor issues. Therefore:

- a. With the obvious exception of Categories 2 and 3, quality criteria for data should not be category dependent. Category 5 and 1 should share the same data quality criteria.
- b. Data older than Executive Policy 1-21 establishing basic water quality assessment criteria in 1993 should be dismissed and certainly not used for Category 5 listing unless field conditions have been shown to be static and the data is accompanied by a reasonably complete QA/QC plan.**
- c. Estimates should not be used for listing, especially for Categories 5 and 1.

Acknowledging the challenge of managing a vast data set with limited staffing, Ecology should be allowed to continue use of previously submitted data for 303(d) listing purposes by presuming, even without documentation, that the data is valid, still applicable, and generated in conformance with a quality assurance project plan meeting the standards of its day. However, Ecology must reclassify listings upon request or upon any internal review that finds supporting data lacking the aforementioned criteria.

City of Longview, Josh Johnson

Ecology Response:

- a. All categories share the same quality criteria. Data that do not meet the quality criteria are not used except in the sense that poor quality data keeps a segment in Category 3 unless other data meeting the quality criteria exists.
- b. Data older than 1993 will still be used unless more recent data meeting quality criteria demonstrate that the water body is meeting the criteria.
- c. The use of estimated values depends on the reason that the value was flagged as an estimate. Some estimated values are a result of an instrument response outside the range of responses within the calibration curve so that the analyst cannot assign the same degree of accuracy as it would have been assigned within the calibration curve. The data are still useful for water quality decisions. Estimated values that far exceed the applicable

numeric pollutant criterion may be used for Category 5 listings. Estimated values that are lower in concentration than the applicable criterion may be used for category 1 listings.

Ecology will accept challenges to the tentative decisions that make up the draft Integrated Report findings. These challenges must be in writing and specify the basis for the challenge. Questionable QA, misinterpretation of data or information, or incorrect assumptions are among the potential basis for challenges.

p. 15, “Assessment Methodology” Second Paragraph – Last Sentence:

Using data older than 10 years to determine historical natural conditions...Presumably people submit data are submitting data that show impairments. How will Ecology ensure that only “representative” data is used for determining natural historical conditions? Also please consider that determining natural historical conditions will vary from parameter to parameter, and some should be measured against pre-1880 conditions (such as temperature).

Sara Kinney, Nooksack Natural Resources

Ecology Response:

An element of credible data is that data sets are complete, that is, not censored to skew the representativeness of data used to characterize the water body. The text has been modified to state this explicitly in Chapter 2 of the policy.

The statement regarding 10 years is meant to allow data older than 10 years to be used to determine natural conditions, not that any data older than 10 years will be used. The parameter in question will determine what time frame is appropriate for historic data used to determine natural conditions.

Pages 5-9 – Public Participation and Submitting Information for the Water Quality Assessment. The discussion on these pages does a good job setting out the ground rules for the acceptable quality/quantity specifications of the data to be used in waterbody assessments. While the Policy promotes the use of “credible data,” it also allows several exceptions for reliance on older data. The question which arises is this: are there any Category 5 waterbody/pollutant listings based solely on data which would not match the “credible data” criteria?

Adding to this interest is the statement on page 15 that “Listings from previous assessment cycles will not be reassessed according to this policy unless more recent information associated with the parameter and waterbody segment is made available.” Ecology should examine this matter and if Category 5 listings based on old and low quality data are found, those waterbody/pollutant combinations should be moved to Category 3 *No Data or Insufficient Data*.

Ken Johnson, Weyerhaeuser

Ecology Response:

While we do not intend to do a full reassessment of all data for the 2006 list, we will reassess those segment/parameter combinations where we receive new information.

At any time, interested parties may contact Ecology in writing to request that an existing waterbody segment listing be reassessed under the listing factors of this policy. The request must state the reason(s) the listing is inappropriate and how the policy would lead to a different outcome and provide the data and information necessary to enable Ecology to conduct the review. The results of assessment reviews which occur between scheduled assessment cycles will become part of the next scheduled draft report to EPA.

Policy 1-11, Chapter 2, “Ensuring Credible Data for Water Quality Management”

In the past, Ecology has applied arbitrary and/or sliding standards for QAPPs. All parties must be held to the same standards and QAPPs should be approved based on policy not staff discretion or be prepared by Ecology for use by all public and private entities.

City of Longview, Josh Johnson

Ecology Response:

QAPPs are to be based on the current QAPP development guidance. QAPPs are reviewed and approved in consideration of the project objectives and it may appear that not all QAPPs are equal.

Information to Accompany a Data Submission – Pages 7,8 – The terms such as "written assurance", "data verification report" and "data validation report" are cited on this page but definitions or required content are not included. Are these all in the same document?

Betsy Cooper, King County Wastewater Treatment Division

Ecology Response:

A data verification report is “written assurance” that data have been verified by the entity generating the data, either a laboratory or the field technician providing the measurement. Data verification involves examining the data for compliance with QC acceptance criteria and for errors or omissions. Data verification is the process of evaluating the completeness, correctness, and conformance of a data set against method requirements.

A data validation report is similar to a data usability assessment. These documents provide confirmation that data are suitable for their intended use. The intended use is usually expressed in the QA Project Plan.

Ecology will be providing a submittal form on the website that will include additional information you are seeking with regard to data submittals.

p. 15, “Assessment Methodology” First Paragraph -Last Sentence:

This sentence needs clarification. It is not clear who will be qualified to model, how the data used in the models will be deemed adequate and what model can be determined as appropriate. Also, QA procedures will need to be defined.

Sara Kinney, Nooksack Natural Resources

Ecology Response:

QA procedures for modeled data are explained in Chapter 2.

We are concerned that volunteer data and third party submittals not be hindered for use in water quality documents due to unreasonable barriers. Best professional judgment should play a role in the use of data, especially data from top universities and research laboratories. Many academic researchers do not have a motivation to submit data for policy and regulatory processes that the Department of Ecology is required to conduct. Therefore, groups like People For Puget Sound play a role in bringing these topline data and research to the attention of Ecology staff. We feel that this document does not leave enough room for this to occur without significant barriers.

For example, the draft chapter states: “Data and information submitted by a third party that were initially collected by other entities must document that the required quality assurance objectives were met. If this documentation of data verification and data validation is not provided, the data will not be used in the characterization of the water body.” It would require a significant effort to provide this information. If data have been published in peer reviewed journals and come from well respected research facilities (including those in Canada, for example), then there should be an easy method for these data to be submitted by the third party.

Heather Trim, People for Puget Sound

Ecology Response:

Our concern with third party data is that the original project may not be designed to provide data that are representative of the water body. An important part of the TMDL priority scheme is to understand the severity or pervasiveness of the pollution. With incomplete data sets, this representativeness is lost. The Water Quality Data Act (WQDA) required Ecology to develop policy that promotes data representativeness and accuracy for making 303(d) and TMDL decisions. There needs to be a high degree of QA/QC documentation for all data used. Provided the QA/QC documentation for third party data and information are made available to Ecology an assessment may be made if applicable to narrative or numeric standards.

For volunteer monitoring groups, there should be a procedure (and perhaps such a procedure is already in place), similar to that in California, for a group to submit a Quality Assurance/Quality Control (QA/QC) plan to Ecology for review prior to commencement of sampling.

Heather Trim, People for Puget Sound

Ecology Response:

As with any data submitter, volunteer groups must follow a QAPP, then document implementation of the QAPP for the data to be considered in the

Integrated Report. However Ecology does not review or approve any and all QAPPs. Only those studies which Ecology funds.

A QAPP preparation tool is under development and will be linked to Chapter 2 when finalized, (expected in October, 2006).

Section 8 of Chapter 2 proposes that Ecology “may” take one or more actions to determine whether data meet the requirements of this policy. We recommend that Ecology revise the policy to reflect a commitment to conduct sufficient audit of data (or data submittals) to assure that Ecology is using credible data when it revises water quality standards, updates water quality assessments, and develops water quality improvement plans.

Brad Ack, Puget Sound Action Team

Ecology Response:

We appreciate the support of the Puget Sound Action Team in conducting a sufficient audit of data submittals when it revises water quality standards, updates water quality assessments, and develops water quality improvement plans.

Ecology has designated staff to provide training and assistance for submittals to the Water Quality Assessment. The level of data audit of submitted data will be determined by available resources as describe in Policy 1-11, Chapter 2, section 8. As part of Water Quality Data Act codified in RCW 90.48.570 through 90.48.590 Ecology will report to the legislature the final Policy 1-11, Chapter 2 and may request additional resources necessary to fully implement this policy.